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=> d his

     (FILE 'HOME' ENTERED AT 10:17:13 ON 07 MAR 2007)
               SET COST OFF

     FILE 'HCAPLUS' ENTERED AT 10:17:38 ON 07 MAR 2007
L1             1 S US20040106040/PN OR (US2003-721280# OR JP2002-342624)/AP,PRN
                 E FUKUOKA/AU
                 E FUKUOKA H/AU
L2           103 S E3,E23,E25,E27
                 E FUKUOKA NAME/AU
L3             4 S E4
                 E HIROFUMI/AU
                 E ARAMATA/AU
                 E ARAMATA M/AU
L4           100 S E3,E5
                 E MIKIO/AU
                 E MIYAWAKI/AU
                 E MIYAWAKINAME/AU
                 E MIYAWAKI NAME/AU
L5            12 S E4
                 E MIYAWAKI S/AU
L6            53 S E3,E4
                 E SATORU/AU
L7             3 S E3
                 E UENO/AU
                 E UENO NAME/AU
L8            23 S E4
                 E UENO S/AU
L9           262 S E3,E4
                 E UENO SU/AU
L10          293 S E11-E13
                 E SUSUMU/AU
L11            4 S E46
L12            1 S E73
                 E MOMII/AU
L13           39 S E10,E12
                 E KAZUMA/AU
                 SEL RN L1

     FILE 'REGISTRY' ENTERED AT 10:22:37 ON 07 MAR 2007
L14            7 S E1-E7
L15            5 S L14 AND SI/ELS
L16            2 S L14 NOT L15

     FILE 'HCAPLUS' ENTERED AT 10:23:46 ON 07 MAR 2007
L17         2976 S VINYLTRIMETHOXYSILANE
L18          183 S VINYL TRIMETHOXYSILANE
L19           64 S VINYL TRIMETHOXY SILANE
L20           34 S VINYLTRIMETHOXY SILANE
L21          623 S METHACRYLOXYPROPYL TRIMETHOXYSILANE
L22         3312 S METHACRYLOXYPROPYLTRIMETHOXYSILANE
L23           82 S METHACRYLOXY PROPYL TRIMETHOXYSILANE
L24           26 S METHACRYLOXY PROPYL TRIMETHOXY SILANE
L25           45 S METHACRYLOXYPROPYL TRIMETHOXY SILANE
L26         5852 S HEXAMETHYLDISILAZANE
L27          261 S HEXAMETHYL DISILAZANE

     FILE 'REGISTRY' ENTERED AT 10:26:45 ON 07 MAR 2007
L28            3 S 999-97-3 OR 2768-02-7 OR 2530-85-0
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     FILE 'HCAPLUS' ENTERED AT 10:27:05 ON 07 MAR 2007
L29      117329 S H01M/IPC,IC,ICM,ICS
                E BATTERY/CT
L30       58717 S E4+OLD,NT OR E5+OLD,NT OR E6+OLD,NT OR E7 OR E8+OLD,NT
                E E9+ALL
L31        8905 S E2+OLD,NT OR E3+OLD,NT OR E4+OLD,NT
                E BATTERIES/CT
L32       28202 S E3-E23
                E E3+ALL
L33      121672 S E1 OR E2+OLD,NT OR E3+OLD,NT OR E4+OLD,NT OR E5+OLD,NT
L34     1090681 S CATHOD? OR ANOD? OR ELECTROD? OR BATTERY
L35     1129250 S L29-L34
                E POLYSILOXANE/CT
L36           1 S E3
L37       65107 S E81
                E E37+OLD
                E POLYSILOXANES/CT
                E E3+OLD
L38      131066 S E1+OLD
                E SILANE/CT
L39       22621 S E3
L40       16621 S E92-E112
                E E92+ALL
L41       16643 S E3,E4
L42      152341 S E3+NT
                E CYCLOSILOXANE/CT
L43        3927 S E29-E74
                E E29+ALL
L44        8616 S E9+NT
                E E8+ALL
L45       15286 S E5+NT
L46       10150 S L35 AND L36-L45
L47         444 S L35 AND L17-L27
L48         451 S L35 AND L28
L49          62 S L1-L13 AND L35
                E SHINETSU/PA,CS
L50         146 S E3,E4 AND L35
                E SHIN ETSU/PA,CS
L51          93 S E5-E84 AND L35
L52         347 S E85-E132 AND L35
L53         107 S E133-E204 AND L35
L54           0 S E205-E221 AND L35
L55           0 S E1,E2 AND L35
                E BACK E1
L56           0 S E5-E13 AND L35
L57       10964 S L46-L56
L58      117800 S L35 AND (?SILOX? OR ?SILAN? OR ?SILIC? OR ?SILYL?)
L59      118554 S L57,L58
L60        7984 S L59 AND L16
L61        2099 S L60 AND PY<=2003 NOT P/DT
L62        1888 S L60 AND PY<=2002 NOT P/DT
L63        4031 S L60 AND (PD<=20031126 OR PRD<=20031126 OR AD<=20031126) AND P
L64        3574 S L60 AND (PD<=20021126 OR PRD<=20021126 OR AD<=20021126) AND P
L65        6130 S L61-L64
L66         197 S L65 AND NEGATIVE(L) ?ELECTROD?
L67          32 S L66 AND (NONAQUEOUS? OR NON AQUEOUS?)
L68          90 S L66 AND (LI OR ?LITHIUM?)
L69           3 S L66 AND (LI OR ?LITHIUM?)(L)OCCLU?
L70          27 S L68 AND L67
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L71          26 S L70 AND SECONDARY
L72          27 S L69,L71
L73           6 S L70,L67 NOT L72
                SEL DN AN 3 5
L74           4 S L73 NOT E1-E6
L75          31 S L72,L74
L76          14 S L49 AND L65
L77          11 S L76 NOT L75
L78          42 S L75-L77
L79          42 S L78 AND L1-L13,L17-L27,L28,L29-L78

     FILE 'REGISTRY' ENTERED AT 10:48:46 ON 07 MAR 2007

     FILE 'HCAPLUS' ENTERED AT 10:48:46 ON 07 MAR 2007
L80             TRA L79 1- RN :      378 TERMS

     FILE 'REGISTRY' ENTERED AT 10:48:48 ON 07 MAR 2007
L81         378 SEA L80
L82         378 S L80
L83          95 S L82 AND SI/ELS
L84          28 S L83 AND (SI AND O)/ELS
L85           1 S L83 AND PMS/CI
L86          18 S L84 AND 2/ELC.SUB
L87           4 S L84 AND C/ELS
L88           6 S L84 NOT L85-L87,L28
L89          67 S L83 NOT L84-L88
L90           1 S L89 AND SI/MF

     FILE 'HCAPLUS' ENTERED AT 10:53:03 ON 07 MAR 2007
L91          32 S L79 AND L90,L85-L87
L92           4 S L79 AND L88
L93           2 S L79 AND L17-L27,L38
L94          32 S L91-L93
L95          10 S L79 NOT L94
L96           1 S L95 AND L1-L13,L50-L53
L97          33 S L94,L96
L98           9 S L79 NOT L97
                SEL DN 8 9
L99           2 S L98 AND E7-E8
L100         35 S L97,L99
L101         36 S L69,L100
L102          8 S L101 AND (OCCLU? OR RELEAS?)
L103         36 S L101,L102

=> fil hcaplus
FILE 'HCAPLUS' ENTERED AT 10:57:37 ON 07 MAR 2007
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2007 AMERICAN CHEMICAL SOCIETY (ACS)
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FILE COVERS 1907 - 7 Mar 2007 VOL 146 ISS 11
FILE LAST UPDATED: 6 Mar 2007 (20070306/ED)

New CAS Information Use Policies, enter HELP USAGETERMS for details.

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> d l103 bib abs hitind hitstr retable tot

L103 ANSWER 1 OF 36 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2006:121966 HCAPLUS
DN 144:174387
TI Method of fabrication of **anode** for **nonaqueous** electrolyte secondary **battery**
IN Koshina, Hizuru; Nakanishi, Shinji
PA Matsushita Electric Industrial Co., Ltd., Japan
SO U.S. Pat. Appl. Publ., 15 pp., Cont.-in-part of U.S. Ser. No. 924,926.
CODEN: USXXCO
DT **Patent**
LA English
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2006029862	A1	20060209	US 2005-240417	20051003 <--
	US 2005048369	A1	20050303	US 2004-924926	20040825 <--
PRAI	JP 2003-305348	A	20030828 <--		
	US 2004-924926	A2	20040825		

AB A **neg. electrode** capable of giving a **nonaq.** electrolyte secondary **battery** which has high capacity, long cycle life and excellent safety, and exhibits an excellent cycle characteristic even when charging/deep-discharging is disclosed. The **neg. electrode** comprises a current collector sheet and an active material layer deposited on the surface of the current collector sheet, wherein the active material layer comprises SiOx satisfying: $0.6 \leq x \leq 1.3$, and does not include a binder.
INCL 429218100; 429245000; 429234000; 427058000
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **anode** fabrication **nonaq** electrolyte secondary **battery**; safety **anode** fabrication **nonaq** electrolyte secondary **battery**
IT Polyamide fibers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(aramid; method of fabrication of **anode** for **nonaq.** electrolyte secondary **battery**)
IT Carbon fibers, uses
RL: MOA (Modifier or additive use); USES (Uses)
(graphite; method of fabrication of **anode** for **nonaq** . electrolyte secondary **battery**)
IT **Battery anodes**
Secondary batteries
Vapor deposition process
(method of fabrication of **anode** for **nonaq.** electrolyte secondary **battery**)
IT Carbon black, uses
Carbonaceous materials (technological products)
Fluoropolymers, uses
Styrene-butadiene rubber, uses
RL: MOA (Modifier or additive use); USES (Uses)

(method of fabrication of **anode** for **nonaq.** electrolyte secondary **battery**)

IT Phenolic resins, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(method of fabrication of **anode** for **nonaq.** electrolyte secondary **battery**)

IT Polyamides, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(method of fabrication of **anode** for **nonaq.** electrolyte secondary **battery**)

IT Polycarbonates, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(method of fabrication of **anode** for **nonaq.** electrolyte secondary **battery**)

IT Polyesters, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(method of fabrication of **anode** for **nonaq.** electrolyte secondary **battery**)

IT Polyimides, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(method of fabrication of **anode** for **nonaq.** electrolyte secondary **battery**)

IT Polyketones
RL: TEM (Technical or engineered material use); USES (Uses)
(polyether-; method of fabrication of **anode** for **nonaq**. electrolyte secondary **battery**)

IT Polyethers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polyketone-; method of fabrication of **anode** for **nonaq.** electrolyte secondary **battery**)

IT 7429-90-5, Aluminum, uses 7439-89-6, Iron, uses 7440-02-0, Nickel, uses **7440-21-3, Silicon**, uses 7440-22-4, Silver, uses 7440-50-8, Copper, uses 7440-57-5, Gold, uses 7440-66-6, Zinc, uses **12192-10-8, Silicon** oxide SiO0.5 **107875-69-4, Silicon** oxide (SiO1.1) **111446-23-2, Silicon** oxide (SiO1.3) **113443-18-8, Silicon** oxide (SiO) **114823-39-1, Silicon** oxide (SiO0.9) **126447-59-4, Silicon** oxide (SiO0.7) **129737-53-7, Silicon** oxide (SiO0.3) **146021-77-4, Silicon** oxide (SiO0.6) **874810-56-7, Silicon** oxide (SiO0.6-1.3)
RL: DEV (Device component use); USES (Uses)
(method of fabrication of **anode** for **nonaq.** electrolyte secondary **battery**)

IT **7782-42-5**, Graphite, uses 24937-79-9, PVDF
RL: MOA (Modifier or additive use); USES (Uses)
(method of fabrication of **anode** for **nonaq.** electrolyte secondary **battery**)

IT 9003-07-0, Polypropylene 25038-59-9, uses 25667-42-9, Polyether sulfone 31694-16-3
RL: TEM (Technical or engineered material use); USES (Uses)
(method of fabrication of **anode** for **nonaq.** electrolyte secondary **battery**)

IT 9003-55-8
RL: MOA (Modifier or additive use); USES (Uses)
(styrene-butadiene rubber; method of fabrication of **anode** for **nonaq.** electrolyte secondary **battery**)

IT **7440-21-3, Silicon**, uses **12192-10-8, Silicon** oxide SiO0.5 **107875-69-4, Silicon** oxide (SiO1.1) **111446-23-2, Silicon** oxide (SiO1.3) **113443-18-8, Silicon** oxide (SiO) **114823-39-1,**

Silicon oxide (SiO0.9) **126447-59-4, Silicon** oxide (SiO0.7) **129737-53-7, Silicon** oxide (SiO0.3) **146021-77-4, Silicon** oxide (SiO0.6) **874810-56-7** , **Silicon** oxide (SiO0.6-1.3)
RL: DEV (Device component use); USES (Uses)
(method of fabrication of **anode** for **nonaq.** electrolyte secondary **battery**)

RN 7440-21-3 HCAPLUS
CN Silicon (CA INDEX NAME)

Si

RN 12192-10-8 HCAPLUS
CN 1,3-Disiloxanediylidyne (9CI) (CA INDEX NAME)

Si—O—Si

RN 107875-69-4 HCAPLUS
CN Silicon oxide (SiO1.1) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.1	17778-80-2
Si	1	7440-21-3

RN 111446-23-2 HCAPLUS
CN Silicon oxide (SiO1.3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.3	17778-80-2
Si	1	7440-21-3

RN 113443-18-8 HCAPLUS
CN Silicon oxide (SiO) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1	17778-80-2
Si	1	7440-21-3

RN 114823-39-1 HCAPLUS
CN Silicon oxide (SiO0.9) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	0.9	17778-80-2
Si	1	7440-21-3

RN 126447-59-4 HCAPLUS
CN Silicon oxide (SiO0.7) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	0.7	17778-80-2
Si	1	7440-21-3

RN 129737-53-7 HCAPLUS
CN Silicon oxide (SiO0.3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	0.3	17778-80-2
Si	1	7440-21-3

RN 146021-77-4 HCAPLUS
CN Silicon oxide (SiO0.6) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	0.6	17778-80-2
Si	1	7440-21-3

RN 874810-56-7 HCAPLUS
CN Silicon oxide (SiO0.6-1.3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	0.6 - 1.3	17778-80-2
Si	1	7440-21-3

IT **7782-42-5**, Graphite, uses
RL: MOA (Modifier or additive use); USES (Uses)
(method of fabrication of **anode** for **nonaq.** electrolyte secondary **battery**)
RN 7782-42-5 HCAPLUS
CN Graphite (CA INDEX NAME)

C

L103 ANSWER 2 OF 36 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2005:181162 HCAPLUS
DN 142:264363
TI Production of **anode** for **nonaqueous** electrolyte **secondary battery**
IN Koshina, Hizuru; Nakanishi, Shinji
PA Matsushita Electric Industrial Co., Ltd., Japan
SO Eur. Pat. Appl., 20 pp.
CODEN: EPXXDW
DT **Patent**
LA English
FAN.CNT 2

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI EP 1511100	A2	20050302	EP 2004-20278	20040826 <--

EP 1511100 A3 20061004
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, HR
JP 2005100959 A 20050414 JP 2004-228168 20040804 <--
CN 1591932 A 20050309 CN 2004-10064497 20040827 <--
PRAI JP 2003-305348 A 20030828 <--

AB The invention concerns a **neg. electrode** capable of giving a **nonaq.** electrolyte **secondary battery** which has high capacity, long cycle life and excellent safety, and exhibits an excellent cycle characteristic even when charging/deep-discharging are repeated. The **neg. electrode** comprises a current collector sheet and an active material layer deposited on the surface of the current collector sheet, wherein the active material layer comprises SiOx satisfying: $0.7 \leq x \leq 1.3$, and does not include a binder. The current collector sheet may comprise a resin core layer and a metal layer coating the surface of the resin core layer.

IC ICM **H01M0004-48**
ICS **H01M0004-66**

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38

ST **anode** prodn **nonaq** electrolyte **secondary battery**; safety **anode nonaq** electrolyte **secondary battery**

IT Polyamide fibers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(aramid; production of **anode** for **nonaq.** electrolyte **secondary battery**)

IT Carbon fibers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(graphite; production of **anode** for **nonaq.** electrolyte **secondary battery**)

IT Polyketones
Polysulfones, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polyether-; production of **anode** for **nonaq.** electrolyte **secondary battery**)

IT Polyethers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polyketone-; production of **anode** for **nonaq.** electrolyte **secondary battery**)

IT Polyethers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polysulfone-; production of **anode** for **nonaq.** electrolyte **secondary battery**)

IT **Battery anodes**
Secondary batteries
(production of **anode** for **nonaq.** electrolyte **secondary battery**)

IT Fluoropolymers, uses
Styrene-butadiene rubber, uses
RL: MOA (Modifier or additive use); USES (Uses)
(production of **anode** for **nonaq.** electrolyte **secondary battery**)

IT Carbon black, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(production of **anode** for **nonaq.** electrolyte **secondary battery**)

IT Carbonaceous materials (technological products)
RL: TEM (Technical or engineered material use); USES (Uses)
(production of **anode** for **nonaq.** electrolyte

secondary battery)
IT Phenolic resins, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(production of **anode** for **nonaq**. electrolyte **secondary battery**)
IT Polyamides, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(production of **anode** for **nonaq**. electrolyte **secondary battery**)
IT Polycarbonates, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(production of **anode** for **nonaq**. electrolyte **secondary battery**)
IT Polyesters, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(production of **anode** for **nonaq**. electrolyte **secondary battery**)
IT Polyimides, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(production of **anode** for **nonaq**. electrolyte **secondary battery**)
IT 7429-90-5, Aluminum, uses 7440-02-0, Nickel, uses 7440-22-4, Silver, uses 7440-50-8, Copper, uses 7440-57-5, Gold, uses 7440-66-6, Zinc, uses 12190-79-3, Cobalt **lithium** oxide (CoLiO2)
113443-18-8, **Silicon** oxide (SiO) **209108-84-9**, **Silicon** oxide (SiO0.7-1.3)
RL: DEV (Device component use); USES (Uses)
(production of **anode** for **nonaq**. electrolyte **secondary battery**)
IT 24937-79-9, Pvdf
RL: MOA (Modifier or additive use); USES (Uses)
(production of **anode** for **nonaq**. electrolyte **secondary battery**)
IT **7782-42-5**, Graphite, uses 25038-59-9, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(production of **anode** for **nonaq**. electrolyte **secondary battery**)
IT 9003-55-8
RL: MOA (Modifier or additive use); USES (Uses)
(styrene-butadiene rubber; production of **anode** for **nonaq**. electrolyte **secondary battery**)
IT **113443-18-8**, **Silicon** oxide (SiO) **209108-84-9**, **Silicon** oxide (SiO0.7-1.3)
RL: DEV (Device component use); USES (Uses)
(production of **anode** for **nonaq**. electrolyte **secondary battery**)
RN 113443-18-8 HCAPLUS
CN Silicon oxide (SiO) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1	17778-80-2
Si	1	7440-21-3

RN 209108-84-9 HCAPLUS
CN Silicon oxide (SiO0.7-1.3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number

O	0.7 - 1.3	17778-80-2
Si	1	7440-21-3

IT **7782-42-5**, Graphite, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(production of **anode** for **nonaq.** electrolyte **secondary battery**)
RN 7782-42-5 HCAPLUS
CN Graphite (CA INDEX NAME)

C

L103 ANSWER 3 OF 36 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2005:123124 HCAPLUS
DN 142:201638
TI **Lithium** ion secondary **battery anode** material preparation
IN **Fukuoka, Hirofumi; Aramata, Mikio; Momii, Kazuma; Miyawaki, Satoru**
PA Japan
SO U.S. Pat. Appl. Publ., 5 pp.
CODEN: USXXCO
DT **Patent**
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 2005031958	A1	20050210	US 2004-910317	20040804 <--
JP 2005056705	A	20050303	JP 2003-286888	20030805 <--
KR 2005016126	A	20050221	KR 2004-61310	20040804 <--
CN 1581535	A	20050216	CN 2004-10056243	20040805 <--
PRAI JP 2003-286888	A	20030805 <--		

AB A metallic **silicon**-containing composite in which metallic **silicon** nuclei are coated with an inert material which does not contribute to adsorption and desorption of **lithium** ions is a useful **neg. electrode** material for **lithium** ion secondary **batteries.** Using the composite as a **neg. electrode** active material, a **lithium** ion secondary **battery** having a high capacity and excellent cycle performance can be fabricated.
IC ICM **H01M0004-58**
ICS **H01M0004-62**; B05D0005-12
INCL 429218100; 429232000; 427122000; 429231950
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **lithium** secondary **battery anode** material prepn
IT **Battery anodes**
(**lithium** ion secondary **battery anode** material preparation)
IT **Secondary batteries**
(**lithium**; **lithium** ion secondary **battery anode** material preparation)
IT **7440-44-0**, Carbon, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(coating; **lithium** ion secondary **battery anode** material preparation)

IT 409-21-2, **Silicon** carbide (SiC), uses **7440-21-3**, **Silicon**, uses **7631-86-9**, **Silica**, uses **11105-01-4**, **Silicon** nitride oxide 12033-89-5, **Silicon** nitride, uses
RL: DEV (Device component use); USES (Uses)
(**lithium** ion secondary **battery anode** material preparation)
IT **7440-44-0**, Carbon, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(coating; **lithium** ion secondary **battery anode** material preparation)
RN 7440-44-0 HCAPLUS
CN Carbon (CA INDEX NAME)

C

IT **7440-21-3**, **Silicon**, uses **7631-86-9**, **Silica**, uses **11105-01-4**, **Silicon** nitride oxide
RL: DEV (Device component use); USES (Uses)
(**lithium** ion secondary **battery anode** material preparation)
RN 7440-21-3 HCAPLUS
CN Silicon (CA INDEX NAME)

Si

RN 7631-86-9 HCAPLUS
CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O=Si=O

RN 11105-01-4 HCAPLUS
CN Silicon nitride oxide (CA INDEX NAME)

Component	Ratio	Component Registry Number
N	x	17778-88-0
O	x	17778-80-2
Si	x	7440-21-3

L103 ANSWER 4 OF 36 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2004:1076996 HCAPLUS
DN 142:59820
TI Production of composite particles for **cathode** and **nonaqueous** electrolyte secondary **battery**
IN Yoshikawa, Masahiro; Iwato, Masaru
PA Hosokawa Powder Engineering Research Institute, Japan
SO Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DT **Patent**
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2004356078	A	20041216	JP 2003-190710	20030528 <--
PRAI	JP 2003-190710		20030528 <--		

AB The **battery** is characterized by having high discharging capacity and less deterioration due to long time charging/discharging operation. Si particles and nano fine structure C material is mixed and processed by compression, shearing, and impacting to form dense composite material coated Si particles, which are used as active material for the preparation of **neg. electrode.** C nanotube is used as the C material and the size of the Si particle is 0.1 μm-1000 nm.

IC ICM **H01M0004-58**
ICS C01B0033-02; **H01M0004-02; H01M0010-40**

CC 52-3 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 72

ST composite particle **cathode nonaq** electrolyte secondary **battery** prodn

IT **Secondary batteries**
(**nonaq.** electrolyte; production of composite particles for **cathode** and **nonaq.** electrolyte secondary **battery**)

IT **Cathodes**
(production of composite particles for **cathode** and **nonaq** . electrolyte secondary **battery**)

IT **7440-44-0**, Carbon, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(nanotubes; production of composite particles for **cathode** and **nonaq.** electrolyte secondary **battery**)

IT **7440-21-3, Silicon**, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(production of composite particles for **cathode** and **nonaq** . electrolyte secondary **battery**)

IT **7440-44-0**, Carbon, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(nanotubes; production of composite particles for **cathode** and **nonaq.** electrolyte secondary **battery**)

RN 7440-44-0 HCAPLUS
CN Carbon (CA INDEX NAME)

C

IT **7440-21-3, Silicon**, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(production of composite particles for **cathode** and **nonaq** . electrolyte secondary **battery**)

RN 7440-21-3 HCAPLUS
CN Silicon (CA INDEX NAME)

Si

L103 ANSWER 5 OF 36 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2004:995068 HCAPLUS
DN 142:180424
TI Novel **nonaqueous** electrolyte solution and **lithium secondary battery** using the solution

IN Bae, Jun Seong; Cho, Jeong Ju; Kim, Hyeong Jin; Kim, Su Jin; Lee, Yeon Hui; Lim, Geun Yeong
PA LG Chem. Ltd., S. Korea
SO Repub. Korean Kongkae Taeho Kongbo, No pp. given
CODEN: KRXXA7
DT **Patent**
LA Korean
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI KR 2003059729	A	20030710	KR 2002-473	20020104 <--
PRAI KR 2002-473		20020104 <--		

AB A novel **nonaq.** electrolyte solution and a **lithium secondary battery** using the solution are provided, wherein the **battery** shows an excellent stability and an improved lifetime. The **nonaq.** electrolyte solution comprises a **lithium** salt; an electrolyte compound; and 0.5-5 weight% of 1,3-**divinyltetramethyldisiloxane**. Preferably the **lithium** salt is at least one selected from the group consisting of LiClO4, LiCF3SO3, LiPF6, LIBF4 and LiN(CF3SO2)2. The **lithium secondary battery** comprises a pos. **electrode** capable of absorbing and discharging a **lithium** ion; a **neg. electrode** capable of absorbing and discharging a **lithium** ion; a porous separator; and the **nonaq.** electrolyte solution Preferably the active material of the pos. **electrode** is at least one **lithium** transition metal oxide selected from the group consisting of LiCoO2, LiNiO2, LiMn2O4, LiMnO2 and LiNi1-xCoxOx (0<x<1); and the active material of the **neg. electrode** is carbon, **lithium** metal or **lithium** alloy.

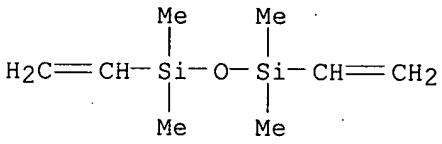
IC ICM **H01M0010-40**
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 57
ST novel **nonaq** electrolyte soln **lithium secondary battery** using soln
IT Transition metal oxides
RL: DEV (Device component use); USES (Uses)
(alkali metal oxides; novel **nonaq.** electrolyte solution and **lithium secondary battery** using solution)
IT **Secondary batteries**
(**lithium**; novel **nonaq.** electrolyte solution and **lithium secondary battery** using solution)
IT **Battery anodes**
Battery cathodes
Battery electrolytes
(novel **nonaq.** electrolyte solution and **lithium secondary battery** using solution)
IT Solvents
(organic, electrolyte; novel **nonaq.** electrolyte solution and **lithium secondary battery** using solution)
IT **Secondary battery separators**
(porous; novel **nonaq.** electrolyte solution and **lithium secondary battery** using solution)
IT Alkali metal oxides
RL: DEV (Device component use); USES (Uses)
(transition metal oxides; novel **nonaq.** electrolyte solution and **lithium secondary battery** using solution)
IT **2627-95-4**, 1,3-**Divinyltetramethyldisiloxane**
7439-93-2D, **Lithium**, alloys 7791-03-9 12031-65-1, **Lithium** nickel oxide (LiNiO2) 12057-17-9, **Lithium**

manganese oxide (LiMn2O4) 12190-79-3, Cobalt **lithium** oxide (CoLiO2) 14283-07-9, **Lithium** tetrafluoroborate 21324-40-3 33454-82-9, **Lithium** trifluoromethanesulfonate 90076-65-6, **Lithium** bistrifluoromethanesulfonyl)imide 131344-56-4, Cobalt **lithium** nickel oxide 210767-01-4, **Lithium** manganese oxide (LiMn2O2)
RL: DEV (Device component use); USES (Uses)
(novel **nonaq.** electrolyte solution and **lithium secondary battery** using solution)

IT 7439-93-2, **Lithium**, uses **7440-44-0**, Carbon, uses
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(novel **nonaq.** electrolyte solution and **lithium secondary battery** using solution)

IT **2627-95-4**, 1,3-**Divinyltetramethyldisiloxane**
RL: DEV (Device component use); USES (Uses)
(novel **nonaq.** electrolyte solution and **lithium secondary battery** using solution)

RN 2627-95-4 HCAPLUS
CN Disiloxane, 1,3-diethenyl-1,1,3,3-tetramethyl- (CA INDEX NAME)



IT **7440-44-0**, Carbon, uses
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(novel **nonaq.** electrolyte solution and **lithium secondary battery** using solution)

RN 7440-44-0 HCAPLUS
CN Carbon (CA INDEX NAME)

C

L103 ANSWER 6 OF 36 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2004:993765 HCAPLUS
DN 141:426240
TI **Anode** material for secondary nonaqueous electrolyte **battery**, its manufacture, and method for selecting **anode** material
IN **Fukuoka, Hirofumi; Aramata, Mikio; Miyawaki, Satoru; Ueno, Susumu; Momii, Kazuma**
PA **Shin-Etsu Chemical Industry Co., Ltd., Japan**
SO Jpn. Kokai Tokkyo Koho, 14 pp.
CODEN: JKXXAF
DT **Patent**
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2004327190	A	20041118	JP 2003-119210	20030424 <--
PRAI JP 2003-119210		20030424 <--		

AB The **anode** material is a conductive powder of a Li intercalating substance coated with a graphite layer, where the graphite coating weighs 3-40% of the **anode** material, has a BET surface 2-30 m2/g, and has raman shift near 1330 and 1580/cm on its raman spectrum. The Li intercalating substance is preferably Si or SiOx (1.0 ≤x ≤1.6). The **anode** material is prepared by CVD treatment of the Li intercalating material in an organic gas and/or vapor at 1000-1400°, and heat treating at 1000-1400° in an inert gas. **Anode** material for the **battery** is selected according to the above described characteristics.

IC ICM **H01M0004-02**
ICS **H01M0004-48; H01M0004-62**

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST secondary lithium **battery anode silicon** oxide graphite coating characteristics; CVD graphite coating **silicon** oxide **anode** secondary lithium **battery**

IT Vapor deposition process
(chemical; manufacture of graphite coatings on lithium intercalating **anode** materials by CVD for secondary lithium **batteries**)

IT **Battery anodes**
(properties of graphite coatings on lithium intercalating **anode** materials for secondary lithium **batteries**)

IT 74-82-8, Methane, processes
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(in manufacture of graphite coatings on lithium intercalating **anode** materials by CVD for secondary lithium **batteries**)

IT **620168-38-9, Silicon** oxide (SiO1.02)
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(properties of graphite coatings on lithium intercalating **anode** materials for secondary lithium **batteries**)

IT **7782-42-5**, Graphite, uses
RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(properties of graphite coatings on lithium intercalating **anode** materials for secondary lithium **batteries**)

IT **620168-38-9, Silicon** oxide (SiO1.02)
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(properties of graphite coatings on lithium intercalating **anode** materials for secondary lithium **batteries**)

RN 620168-38-9 HCAPLUS

CN Silicon oxide (SiO1.02) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.02	17778-80-2
Si	1	7440-21-3

IT **7782-42-5**, Graphite, uses
RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(properties of graphite coatings on lithium intercalating **anode** materials for secondary lithium **batteries**)

RN 7782-42-5 HCAPLUS

CN Graphite (CA INDEX NAME)

C

L103 ANSWER 7 OF 36 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2004:874114 HCAPLUS
DN 141:368331
TI **Silicon** conductive coating material, its manufacture, and **anode** material for secondary nonaqueous electrolyte **battery**
IN **Miyawaki, Satoru; Aramata, Mikio; Fukuoka, Hirofumi; Momii, Kazuma**
PA **Shin-Etsu Chemical Industry Co., Ltd., Japan**
SO Jpn. Kokai Tokkyo Koho, 11 pp.
CODEN: JKXXAF
DT **Patent**
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004296161	A	20041021	JP 2003-84229	20030326 <--
PRAI JP 2003-84229		20030326 <--		

AB The coating material has a carbonaceous material, containing several crystalline components and coated on a a Si material, having Si doped by B, P, N, Sb, As, Al, K and/or In and a specific resistance of ≤10 Ωcm in its wafer or ingot; and is manufactured by vapor depositing the required Si material in an organic gas and/or vapor at 900-1400°. The **anode** material contains the above coating material.
IC ICM H01B0005-00
ICS C01B0033-02; **H01M0004-02; H01M0004-38; H01M0004-62; H01M0010-40**
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST secondary **battery anode silicon** coating material small specific resistance
IT **Secondary batteries**
(lithium; manufacture of **silicon** conductive coating materials with small specific resistance for secondary **battery anodes**)
IT **Battery anodes**
(manufacture of **silicon** conductive coating materials with small specific resistance for secondary **battery anodes**)
IT **7440-21-3D, Silicon,** B doped **7782-42-5,** Graphite, uses
RL: DEV (Device component use); USES (Uses)
(manufacture of **silicon** conductive coating materials with small specific resistance for secondary **battery anodes**)
IT **7440-21-3D, Silicon,** B doped **7782-42-5,** Graphite, uses
RL: DEV (Device component use); USES (Uses)
(manufacture of **silicon** conductive coating materials with small specific resistance for secondary **battery anodes**)
RN 7440-21-3 HCAPLUS
CN Silicon (CA INDEX NAME)

Si

RN 7782-42-5 HCAPLUS
CN Graphite (CA INDEX NAME)

C

L103 ANSWER 8 OF 36 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2004:842758 HCAPLUS
DN 141:334937
TI **Anode** material for secondary nonaqueous electrolyte **battery**
IN Takamura, Tsutomu; Sekine, Kyoichi; **Aramata, Mikio**; **Miyawaki, Satoru**
PA **Shin-Etsu Chemical Industry Co., Ltd., Japan**
SO Jpn. Kokai Tokkyo Koho, 9 pp.
CODEN: JKXXAF
DT **Patent**
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2004288525	A	20041014	JP 2003-80697	20030324 <--
PRAI	JP 2003-80697		20030324 <--		

AB The **anode** material contains a Si material, having Si doped by B, P, N, Sb, As, Al, K and/or In and a specific resistance of ≤10 Ωcm in its wafer or ingot.
IC ICM **H01M0004-38**
ICS **H01M0004-02**; **H01M0010-40**
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST secondary lithium **battery anode silicon** material small specific resistance
IT **Battery anodes**
(**anodes** containing **silicon** materials with small specific resistance for secondary lithium **batteries**)
IT **7440-21-3**, **Silicon**, uses
RL: DEV (Device component use); USES (Uses)
(B doped; **anodes** containing **silicon** materials with small specific resistance for secondary lithium **batteries**)
IT **7782-42-5**, Graphite, uses
RL: DEV (Device component use); USES (Uses)
(**anodes** containing **silicon** material with small specific resistance for secondary lithium **batteries**)
IT **7440-21-3**, **Silicon**, uses
RL: DEV (Device component use); USES (Uses)
(B doped; **anodes** containing **silicon** materials with small specific resistance for secondary lithium **batteries**)
RN 7440-21-3 HCAPLUS
CN Silicon (CA INDEX NAME)

Si

IT **7782-42-5**, Graphite, uses
RL: DEV (Device component use); USES (Uses)
(**anodes** containing **silicon** material with small specific resistance for secondary lithium **batteries**)
RN 7782-42-5 HCAPLUS
CN Graphite (CA INDEX NAME)

C

L103 ANSWER 9 OF 36 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2004:451534 HCAPLUS
DN 140:426180
TI Preparation of **nonaqueous** electrolyte **battery anode** material for **lithium** ion **secondary battery**
IN **Fukuoka, Hirofumi; Aramata, Mikio; Miyawaki, Satoru; Ueno, Susumu; Momii, Kazuma**
PA Japan
SO U.S. Pat. Appl. Publ., 7 pp.
CODEN: USXXCO
DT **Patent**
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 2004106040	A1	20040603	US 2003-721280	20031126 <--
JP 2004178917	A	20040624	JP 2002-342624	20021126 <--
KR 2004047621	A	20040605	KR 2003-83847	20031125 <--
CN 1505187	A	20040616	CN 2003-10124624	20031126 <--
PRAI JP 2002-342624	A	20021126 <--		

AB A **nonaq.** electrolyte **secondary battery** **neg. electrode** material is provided wherein a **neg. electrode** active material containing a **lithium** ion-**occluding** and **releasing** material which has been treated with an **organosilicon** base surface treating agent is surface coated with a conductive coating. Using the **neg. electrode** material, a **lithium** ion **secondary battery** having a high capacity and improved cycle performance is obtainable.
IC ICM **H01M0004-62**
ICS B05D0005-12
INCL 429212000; 429232000; 427058000
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38
ST **lithium** ion **secondary battery anode** prepn
IT Dispersion (of materials)
(composite; preparation of **nonaq.** electrolyte **battery anode** material for **lithium** ion **secondary battery**)
IT **Silanes**
RL: MOA (Modifier or additive use); USES (Uses)
(coupling agent; preparation of **nonaq.** electrolyte **battery anode** material for **lithium** ion **secondary battery**)
IT Coating materials
(elec. conductive; preparation of **nonaq.** electrolyte **battery anode** material for **lithium** ion **secondary battery**)
IT **Secondary batteries**
(**lithium**; preparation of **nonaq.** electrolyte **battery anode** material for **lithium** ion **secondary battery**)
IT **Battery anodes**

Silylation
(preparation of **nonaq.** electrolyte **battery anode** material for **lithium** ion **secondary battery**)

IT **Polysiloxanes, uses**
RL: MOA (Modifier or additive use); USES (Uses)
(preparation of **nonaq.** electrolyte **battery anode** material for **lithium** ion **secondary battery**)

IT **7440-44-0**, Carbon, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(coating; preparation of **nonaq.** electrolyte **battery anode** material for **lithium** ion **secondary battery**)

IT **2768-02-7**, KBM1003
RL: MOA (Modifier or additive use); USES (Uses)
(coupling agent; preparation of **nonaq.** electrolyte **battery anode** material for **lithium** ion **secondary battery**)

IT **7440-21-3, Silicon**, uses **7631-86-9, Silica**, uses **337529-55-2, Silicon** oxide SiO1-1.6
RL: DEV (Device component use); USES (Uses)
(preparation of **nonaq.** electrolyte **battery anode** material for **lithium** ion **secondary battery**)

IT **7782-42-5**, Graphite, uses **620168-38-9, Silicon** oxide SiO1.02
RL: TEM (Technical or engineered material use); USES (Uses)
(preparation of **nonaq.** electrolyte **battery anode** material for **lithium** ion **secondary battery**)

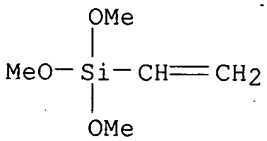
IT **7440-44-0**, Carbon, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(coating; preparation of **nonaq.** electrolyte **battery anode** material for **lithium** ion **secondary battery**)

RN 7440-44-0 HCAPLUS
CN Carbon (CA INDEX NAME)

C

IT **2768-02-7**, KBM1003
RL: MOA (Modifier or additive use); USES (Uses)
(coupling agent; preparation of **nonaq.** electrolyte **battery anode** material for **lithium** ion **secondary battery**)

RN 2768-02-7 HCAPLUS
CN Silane, ethenyltrimethoxy- (CA INDEX NAME)



IT **7440-21-3, Silicon**, uses **7631-86-9, Silica**, uses **337529-55-2, Silicon** oxide SiO1-1.6
RL: DEV (Device component use); USES (Uses)
(preparation of **nonaq.** electrolyte **battery anode** material for **lithium** ion **secondary battery**)
RN 7440-21-3 HCAPLUS
CN Silicon (CA INDEX NAME)

Si

RN 7631-86-9 HCAPLUS
CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O=Si=O

RN 337529-55-2 HCAPLUS
CN Silicon oxide (SiO1-1.6) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1 - 1.6	17778-80-2
Si	1	7440-21-3

IT **7782-42-5**, Graphite, uses **620168-38-9, Silicon** oxide SiO1.02
RL: TEM (Technical or engineered material use); USES (Uses)
(preparation of **nonaq.** electrolyte **battery anode** material for **lithium** ion **secondary battery**)
RN 7782-42-5 HCAPLUS
CN Graphite (CA INDEX NAME)

C

RN 620168-38-9 HCAPLUS
CN Silicon oxide (SiO1.02) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.02	17778-80-2
Si	1	7440-21-3

L103 ANSWER 10 OF 36 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2004:200155 HCAPLUS
DN 140:220733
TI Methods for producing **anode** material for **nonaqueous** electrolyte **secondary battery**
IN Shimamura, Harunari; Nakamato, Takayuki; Ohyama, Hideaki; Bito, Yasuhiko
PA Matsushita Electric Industrial Co., Ltd., Japan; Sumitomo Metal

Industries, Ltd.
SO Eur. Pat. Appl., 7 pp.
CODEN: EPXXDW
DT **Patent**
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1396894	A2	20040310	EP 2003-19989	20030903 <--
	EP 1396894	A3	20060104		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
	JP 2004103340	A	20040402	JP 2002-262036	20020906 <--
	US 2004062990	A1	20040401	US 2003-656483	20030905 <--
	CN 1495938	A	20040512	CN 2003-157008	20030908 <--
PRAI	JP 2002-262036	A	20020906 <--		

AB A **neg. electrode** material for a **nonaq.** electrolyte **secondary battery** of the present invention is a material for a **non-aqueous** electrolyte **secondary battery** capable of reversibly absorbing and desorbing **lithium**, and it includes a solid phase A and a solid phase B that have different compns. and has a structure in which the surface around the solid phase A is entirely or partly covered by the solid phase B. The solid phase A contains at least one element selected from the group consisting of **silicon**, tin and zinc, and the solid phase B contains the above-described at least one element contained in the solid phase A, and at least one element selected from the group consisting of Group IIA elements, transition elements, Group IIB elements, Group IIIB elements and Group IVB elements. The atomic arrangement and structure (e.g., crystal structure or amorphous structure) of at least one solid phase selected from the group consisting of the solid phase A and the solid phase B are controlled. It is possible to provide a **neg. electrode** material for a **nonaq.** electrolyte **secondary battery** in which deterioration due to charge/discharge cycle characteristics is suppressed, by using such a material as a **neg. electrode** material for a **nonaq.** electrolyte **secondary battery**. It is also possible to provide a **nonaq.** electrolyte **secondary battery** having excellent charge/discharge cycle characteristics, by including such a **neg. electrode** material for a **nonaq.** electrolyte **secondary battery**.

IC ICM **H01M0004-38**
ICS **H01M0010-40**
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 56
ST **anode** material **nonaq** electrolyte **secondary battery**
IT Alkaline earth metals
Group IIB elements
Group IIIB elements
Group IVB elements
Transition metals, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(coating; methods for producing **anode** material for **nonaq.** electrolyte **secondary battery**)
IT **Secondary batteries**
(**lithium**; methods for producing **anode** material for **nonaq.** electrolyte **secondary battery**)
IT **Battery anodes**
(methods for producing **anode** material for **nonaq.**

electrolyte **secondary battery**)
IT 11143-56-9 12014-85-6, Cerium **disilicide** 12017-12-8, Cobalt **silicide** cosi2 12018-09-6, Chromium **disilicide** 12022-99-0, Iron **disilicide** 12023-01-7 12038-66-3, Rhenium **disilicide** 12039-83-7, Titanium **silicide** tisi2 12039-88-2, Tungsten **disilicide** 12049-73-9, Calcium **silicide** ca2si 12166-24-4, Ruthenium **silicide** ru2si3 12166-63-1 12211-23-3 12738-91-9, Titanium **silicide** 22831-39-6, Magnesium **silicide** mg2si 50955-74-3 53351-82-9 117615-38-0, Copper **silicide** cusi2 664306-61-0
RL: TEM (Technical or engineered material use); USES (Uses)
(coating; methods for producing **anode** material for **nonaq.** electrolyte **secondary battery**)
IT **7440-21-3**, **Silicon**, uses 7440-31-5, Tin, uses 7440-66-6, Zinc, uses **7782-42-5**, Graphite, uses
RL: DEV (Device component use); USES (Uses)
(methods for producing **anode** material for **nonaq.** electrolyte **secondary battery**)
IT 7439-93-2, **Lithium**, uses
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(methods for producing **anode** material for **nonaq.** electrolyte **secondary battery**)
IT **7440-21-3**, **Silicon**, uses **7782-42-5**, Graphite, uses
RL: DEV (Device component use); USES (Uses)
(methods for producing **anode** material for **nonaq.** electrolyte **secondary battery**)
RN 7440-21-3 HCAPLUS
CN Silicon (CA INDEX NAME)

Si

RN 7782-42-5 HCAPLUS
CN Graphite (CA INDEX NAME)

C

L103 ANSWER 11 OF 36 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2003:913456 HCAPLUS
DN 139:367607
TI **Nonaqueous** electrolyte secondary cell
IN Tabuchi, Toru; Aoki, Toshiyuki; Teshima, Minoru; Nishie, Katsushi
PA Japan Storage Battery Co., Ltd., Japan
SO PCT Int. Appl., 134 pp.
CODEN: PIXXD2
DT **Patent**
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2003096449	A1	20031120	WO 2003-JP5654	20030506 <--
	W: CN, KR, US				
	JP 2003331832	A	20031121	JP 2002-132786	20020508 <--
	JP 2004022367	A	20040122	JP 2002-176350	20020617 <--

	JP 2004139886	A	20040513	JP 2002-304654	20021018 <--
	JP 2004146292	A	20040520	JP 2002-312340	20021028 <--
	CN 1650449	A	20050803	CN 2003-810136	20030506 <--
	US 2006166098	A1	20060727	US 2006-513664	20060120 <--
PRAI	JP 2002-132786	A	20020508 <--		
	JP 2002-176350	A	20020617 <--		
	JP 2002-304654	A	20021018 <--		
	JP 2002-312340	A	20021028 <--		
	WO 2003-JP5654	W	20030506 <--		

AB The invention relates to a **nonaq**. electrolyte secondary cell comprising a pos. **electrode**, a **neg**. **electrode** including a **neg**. active material, and a **nonaq**. electrolyte, characterized in that the **neg**. active material comprises composite particles composed of particles containing **silicon** and a conductivity imparting material and a carbonaceous material, and the weight of the conductivity imparting material ranges from 0.5 weight% to 60 weight% based on the weight of the composite particles. Since the **neg**. active material comprises **silicon** that leads to a large discharge capacity, the **nonaq**. electrolyte secondary cell has a large discharge capacity. Further, since the **neg**. active material comprises the conductivity imparting material and the carbonaceous material, the contact conductivity between particles containing **silicon** or that of the **neg**. active material are improved, thereby providing a **nonaq**. electrolyte secondary cell having favorable cycle characteristics.

IC ICM **H01M0004-02**
ICS **H01M0004-58**

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST secondary **battery nonaq** electrolyte

IT **Secondary batteries**
(**nonaq**. electrolyte secondary cell)

IT **7440-21-3, Silicon**, uses **7440-44-0**, Carbon, uses **11126-22-0, Silicon** oxide
RL: DEV (Device component use); EPR (Engineering process); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(**nonaq**. electrolyte secondary cell)

IT **7440-21-3, Silicon**, uses **7440-44-0**, Carbon, uses **11126-22-0, Silicon** oxide
RL: DEV (Device component use); EPR (Engineering process); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(**nonaq**. electrolyte secondary cell)

RN 7440-21-3 HCAPLUS
CN Silicon (CA INDEX NAME)

Si

RN 7440-44-0 HCAPLUS
CN Carbon (CA INDEX NAME)

C

RN 11126-22-0 HCAPLUS
CN Silicon oxide (CA INDEX NAME)

Component	Ratio	Component

		Registry Number
O	x	17778-80-2
Si	x	7440-21-3

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Fuji Photo Film Co Ltd	2000			JP 20003730 A	
Japan Storage Battery C	2002			JP 200242806 A	
Matsushita Battery Indu	1998			JP 10-308207 A	HCAPLUS
Mitsui Mining Co Ltd	2000			EP 1024544 A2	HCAPLUS
Mitsui Mining Co Ltd	2000			JP 2000215887 A	HCAPLUS
Mitsui Mining Co Ltd	2000			US 6383686 B1	HCAPLUS
Osaka Gas Co Ltd	1999			JP 11-343109 A	HCAPLUS

L103 ANSWER 12 OF 36 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2003:910263 HCAPLUS
DN 139:367580
TI Preparation of conductive **silicon** composite for **anode** material for **nonaqueous** electrolyte **secondary battery**
IN **Aramata, Mikio; Miyawaki, Satoru; Ueno, Susumu ; Fukuoka, Hirofumi; Momii, Kazuma**
PA **Shin-Etsu Chemical Co., Ltd., Japan**
SO Eur. Pat. Appl., 21 pp.
CODEN: EPXXDW
DT **Patent**
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1363341	A2	20031119	EP 2002-256435	20020917 <--
	EP 1363341	A3	20040114		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK				
	JP 2004047404	A	20040212	JP 2002-259040	20020904 <--
	US 2003215711	A1	20031120	US 2002-246426	20020919 <--
	US 7037581	B2	20060502		
	CN 1513922	A	20040721	CN 2002-155814	20020920 <--
PRAI	JP 2002-142777	A	20020517 <--		

AB In a conductive **silicon** composite, particles have a structure in which crystallites of **silicon** are dispersed in **silicon** dioxide are coated on their surfaces with carbon affords satisfactory cycle performance when used as the **neg. electrode** material in a **nonaq.** electrolyte **secondary** cell.
IC ICM **H01M0004-36**
ICS **H01M0004-48**; C09C0001-30
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **lithium battery silicon** composite **anode** material prepn
IT Vapor deposition process
(chemical; preparation of conductive **silicon** composite for **anode** material for **nonaq.** electrolyte **secondary battery**)
IT Reactors
(fluidized-bed; preparation of conductive **silicon** composite for **anode** material for **nonaq.** electrolyte **secondary battery**)

IT **Secondary batteries**
(**lithium**; preparation of conductive **silicon** composite for **anode** material for **nonaq**. electrolyte **secondary battery**)
IT Reactors
(moving-bed, vertical; preparation of conductive **silicon** composite for **anode** material for **nonaq**. electrolyte **secondary battery**)
IT **Battery anodes**
Composites
(preparation of conductive **silicon** composite for **anode** material for **nonaq**. electrolyte **secondary battery**)
IT Fluidized beds
(reactors; preparation of conductive **silicon** composite for **anode** material for **nonaq**. electrolyte **secondary battery**)
IT Furnaces
Kilns
(rotary; preparation of conductive **silicon** composite for **anode** material for **nonaq**. electrolyte **secondary battery**)
IT 74-82-8, Methane, processes
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(preparation of conductive **silicon** composite for **anode** material for **nonaq**. electrolyte **secondary battery**)
IT **7440-21-3, Silicon**, uses
RL: DEV (Device component use); USES (Uses)
(preparation of conductive **silicon** composite for **anode** material for **nonaq**. electrolyte **secondary battery**)
IT **7440-44-0**, Carbon, uses **7631-86-9, Silica**, uses **620168-38-9, Silicon** oxide (SiO1.02)
RL: TEM (Technical or engineered material use); USES (Uses)
(preparation of conductive **silicon** composite for **anode** material for **nonaq**. electrolyte **secondary battery**)
IT **7440-21-3, Silicon**, uses
RL: DEV (Device component use); USES (Uses)
(preparation of conductive **silicon** composite for **anode** material for **nonaq**. electrolyte **secondary battery**)
RN 7440-21-3 HCAPLUS
CN Silicon (CA INDEX NAME)

Si

IT **7440-44-0**, Carbon, uses **7631-86-9, Silica**, uses **620168-38-9, Silicon** oxide (SiO1.02)
RL: TEM (Technical or engineered material use); USES (Uses)
(preparation of conductive **silicon** composite for **anode** material for **nonaq**. electrolyte **secondary battery**)
RN 7440-44-0 HCAPLUS
CN Carbon (CA INDEX NAME)

C

RN 7631-86-9 HCAPLUS
CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O═Si═O

RN 620168-38-9 HCAPLUS
CN Silicon oxide (SiO1.02) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.02	17778-80-2
Si	1	7440-21-3

L103 ANSWER 13 OF 36 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2003:872482 HCAPLUS
DN 139:352685
TI Manufacture of **anode** material for secondary nonaqueous-electrolyte **battery**
IN **Fukuoka, Hirofumi; Aramata, Mikio; Miyawaki, Satoru; Ueno, Susumu; Momii, Kazuma**
PA **Shin-Etsu Chemical Industry Co., Ltd., Japan**
SO Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DT **Patent**
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2003317717	A	20031107	JP 2002-117432	20020419 <--
PRAI JP 2002-117432		20020419 <--		

AB The title **anode** material is manufactured by heating a mixture containing a Li ion-intercalating material and graphite powder under atmospheric containing an organic substance gas or vapor at 500-1300°. The Li ion-intercalating material may be selected from Si, MOx (M = Si, Ge, Sn, Pb, Bi, Sb, Zn, In, and/or Mg; x = 0.1-4), or LiMyOz (M = Si, Ge, Sn, Pb, Bi, Sb, Zn, In, and/or Mg; y = 0.1-4; z = 0.1-8). A **battery** equipped with the resulting **anode** provides high capacity and long cycle life.
IC ICM **H01M0004-48**
ICS **H01M0004-02; H01M0004-58; H01M0010-40**
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST lithium intercalating **anode** graphite manuf heating nonaq **battery**
IT Vapor deposition process
(chemical; heating in manufacture of Li-intercalating **anode** material containing graphite for secondary nonaq.-electrolyte **battery**)
IT **Battery anodes**
Heating
(heating in manufacture of Li-intercalating **anode** material containing graphite for secondary nonaq.-electrolyte **battery**)
IT 74-82-8, Methane, processes
RL: CPS (Chemical process); PEP (Physical, engineering or chemical

process); PROC (Process)
(chemical-vapor deposition of; heating in manufacture of Li-intercalating **anode** material containing graphite for secondary nonaq.-electrolyte **battery**)

IT **7782-42-5P**, Graphite, uses **110986-74-8P, Silicon** oxide (SiO1.07)
RL: DEV (Device component use); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); PYP (Physical process); PREP (Preparation); PROC (Process); USES (Uses)
(heating in manufacture of Li-intercalating **anode** material containing graphite for secondary nonaq.-electrolyte **battery**)

IT **7440-21-3, Silicon**, uses 12188-25-9, Lithium tin oxide (Li2SnO3) 12315-28-5, Lithium germanium oxide (Li2GeO3) 20619-16-3, Germanium oxide (GeO) 21651-19-4, Tin oxide (SnO) **337529-55-2, Silicon** oxide (SiO1-1.6) 615535-82-5, Bismuth lithium oxide (BiLi2O4)
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(heating in manufacture of Li-intercalating **anode** material containing graphite for secondary nonaq.-electrolyte **battery**)

IT **7782-42-5P**, Graphite, uses **110986-74-8P, Silicon** oxide (SiO1.07)
RL: DEV (Device component use); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); PYP (Physical process); PREP (Preparation); PROC (Process); USES (Uses)
(heating in manufacture of Li-intercalating **anode** material containing graphite for secondary nonaq.-electrolyte **battery**)

RN 7782-42-5 HCAPLUS
CN Graphite (CA INDEX NAME)

C

RN 110986-74-8 HCAPLUS
CN Silicon oxide (SiO1.7) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.7	17778-80-2
Si	1	7440-21-3

IT **7440-21-3, Silicon**, uses **337529-55-2, Silicon** oxide (SiO1-1.6)
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(heating in manufacture of Li-intercalating **anode** material containing graphite for secondary nonaq.-electrolyte **battery**)

RN 7440-21-3 HCAPLUS
CN Silicon (CA INDEX NAME)

Si

RN 337529-55-2 HCAPLUS
CN Silicon oxide (SiO1-1.6) (9CI) (CA INDEX NAME)

Component	Ratio	Component

		Registry Number
O	1 - 1.6	17778-80-2
Si	1	7440-21-3

L103 ANSWER 14 OF 36 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2003:853393 HCAPLUS
DN 139:340030
TI **Anode** material having conductive coating for secondary lithium ion **battery** and its manufacture
IN **Fukuoka, Hirofumi; Miyawaki, Satoru; Aramata, Mikio; Ueno, Susumu; Momii, Kazuma**
PA **Shin-Etsu Chemical Industry Co., Ltd., Japan**
SO Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DT **Patent**
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2003308837	A	20031031	JP 2002-116429	20020418 <--
PRAI JP 2002-116429		20020418 <--		

AB The claimed **anode** material has a Li-intercalating material coated with a conductive film by chemical-vapor deposition. The claimed process comprises heat treating the Li-intercalating material under atmospheric containing an organic substance gas or vapor at 500-1300°. A **battery** equipped with the **anode** provides high charging-discharging capacity and long cycle life.

IC ICM **H01M0004-48**
ICS **H01M0004-02; H01M0004-58; H01M0010-40**
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST chem vapor deposition conductive coating **anode** lithium **battery**
IT **Battery anodes**
(chemical-vapor deposition of conductive coating on **anode** material for secondary lithium ion **battery**)
IT Vapor deposition process
(chemical; chemical-vapor deposition of conductive coating on **anode** material for secondary lithium ion **battery**)
IT 12188-25-9, Lithium tin oxide (Li2SnO3) 12315-28-5, Germanium lithium oxide (GeLi2O3) 20619-16-3, Germanium oxide (GeO) 21651-19-4, Tin oxide (SnO) 615535-82-5, Bismuth lithium oxide (BiLi2O4)
RL: DEV (Device component use); USES (Uses)
(**anode**; chemical-vapor deposition of conductive coating on **anode** material for secondary lithium ion **battery**)
IT **7782-42-5P**, Graphite, uses
RL: DEV (Device component use); PNU (Preparation, unclassified); PREP (Preparation); USES (Uses)
(coating; chemical-vapor deposition of conductive coating on **anode** material for secondary lithium ion **battery**)
IT **7782-42-5P**, Graphite, uses
RL: DEV (Device component use); PNU (Preparation, unclassified); PREP (Preparation); USES (Uses)
(coating; chemical-vapor deposition of conductive coating on **anode** material for secondary lithium ion **battery**)
RN 7782-42-5 HCAPLUS
CN Graphite (CA INDEX NAME)

C

L103 ANSWER 15 OF 36 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2003:492516 HCAPLUS
DN 139:55479
TI Preparation of conductive **silicon** oxide powder as **anode** material for **nonaqueous** electrolyte **secondary battery**
IN **Fukuoka, Hirofumi**; **Miyawaki, Satoru**; **Momii, Kazuma**; **Aramata, Mikio**; **Ueno, Susumu**
PA Japan
SO U.S. Pat. Appl. Publ., 9 pp.
CODEN: USXXCO
DT **Patent**
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2003118905	A1	20030626	US 2002-237089	20020909 <--
	JP 2004063433	A	20040226	JP 2002-244658	20020826 <--
	EP 1323783	A2	20030702	EP 2002-256107	20020903 <--
	EP 1323783	A3	20060621		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK				
	TW 593141	B	20040621	TW 2002-91120076	20020903 <--
	CN 1428880	A	20030709	CN 2002-132399	20020924 <--
PRAI	JP 2001-393149	A	20011226 <--		
	JP 2002-110194	A	20020412 <--		
	JP 2002-164366	A	20020605 <--		

AB A conductive **silicon** oxide powder in which particles of **silicon** oxide having the formula: SiOx wherein $1 \leq x < 1.6$ are covered on their surfaces with a conductive carbon coating by chemical vapor deposition treatment is useful as a **neg. electrode** active material to construct a **lithium** ion **secondary** cell having a high capacity and improved cycle performance.
IC ICM **H01M0004-62**
ICS C01B0033-12; **H01M0004-48**
INCL 429218100; 429232000; 423335000
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **battery anode** conductive **silicon** oxide powder prepn; carbon coated **silicon** oxide **anode** **lithium secondary battery**
IT Vapor deposition process
(chemical; preparation of conductive **silicon** oxide powder as **anode** material for **nonaq.** electrolyte **secondary battery**)
IT Coating materials
(conductive; preparation of conductive **silicon** oxide powder as **anode** material for **nonaq.** electrolyte **secondary battery**)
IT Reactors
(fluidized-bed; preparation of conductive **silicon** oxide powder as **anode** material for **nonaq.** electrolyte **secondary battery**)
IT **Secondary batteries**
(**lithium**; preparation of conductive **silicon** oxide powder as **anode** material for **nonaq.** electrolyte **secondary battery**)

IT **Battery anodes**
Electric conductivity
Fluidization
Heat treatment
(preparation of conductive **silicon** oxide powder as **anode** material for **nonaq.** electrolyte **secondary battery**)
IT Fluidized beds
(reactors; preparation of conductive **silicon** oxide powder as **anode** material for **nonaq.** electrolyte **secondary battery**)
IT **7440-44-0**, Carbon, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(coating; preparation of conductive **silicon** oxide powder as **anode** material for **nonaq.** electrolyte **secondary battery**)
IT 74-82-8, Methane, uses
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(preparation of conductive **silicon** oxide powder as **anode** material for **nonaq.** electrolyte **secondary battery**)
IT **12060-65-0P, Silicon** oxide SiO1.05 **337529-55-2P**
, Silicon oxide SiO1-1.6
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(preparation of conductive **silicon** oxide powder as **anode** material for **nonaq.** electrolyte **secondary battery**)
IT 7440-37-1, Argon, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(preparation of conductive **silicon** oxide powder as **anode** material for **nonaq.** electrolyte **secondary battery**)
IT **7440-44-0**, Carbon, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(coating; preparation of conductive **silicon** oxide powder as **anode** material for **nonaq.** electrolyte **secondary battery**)
RN 7440-44-0 HCAPLUS
CN Carbon (CA INDEX NAME)

C

IT **12060-65-0P, Silicon** oxide SiO1.05 **337529-55-2P**
, Silicon oxide SiO1-1.6
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(preparation of conductive **silicon** oxide powder as **anode** material for **nonaq.** electrolyte **secondary battery**)
RN 12060-65-0 HCAPLUS
CN Silicon oxide (Si2O3) (CA INDEX NAME)

Component	Ratio	Component Registry Number

O	3	17778-80-2
Si	2	7440-21-3

RN 337529-55-2 HCAPLUS
CN Silicon oxide (SiO1-1.6) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1 - 1.6	17778-80-2
Si	1	7440-21-3

L103 ANSWER 16 OF 36 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2003:435108 HCAPLUS
DN 138:405678
TI Preparation of C/Si/O oxidation-resistant composites by impregnation of expanded graphite with crosslinkable **silanes** or **siloxanes** and heat treatment
IN Konno, Hidetaka; **Aramata, Mikio; Fukuoka, Hirofumi**
PA Japan
SO U.S. Pat. Appl. Publ., 5 pp.
CODEN: USXXCO
DT **Patent**
LA English
FAN.CNT 1

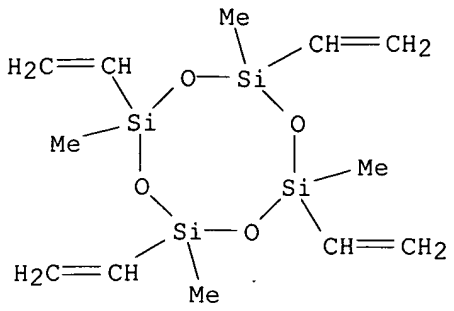
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2003104131	A1	20030605	US 2002-307924	20021203 <--
	US 6787189	B2	20040907		
	JP 2003171180	A	20030617	JP 2001-368167	20011203 <--
PRAI	JP 2001-368167	A	20011203 <--		

AB High-temperature C/Si/O composites with improved oxidation resistance are prepared by impregnating expanded graphite with a crosslinkable **silane** or **siloxane**, causing the **silane** or **siloxane** to crosslink within the graphite under heating at 300-1200° in a non-oxidizing gas (such as argon). The C/Si/O composite material can be efficiently prepared through simple steps, on an industrial scale and at a low cost.
IC ICM B05D0003-02
INCL 427376200
CC 57-2 (Ceramics)
Section cross-reference(s): 38
ST graphite **silane siloxane** impregnation heat treatment oxidn resistant composite
IT **Silanes**
Siloxanes (nonpolymeric)
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process)
(crosslinkable, impregnation precursor; preparation of C/Si/O oxidation-resistant composites by impregnation of expanded graphite with crosslinkable **silanes** or **siloxanes** and heat treatment)
IT **Polysiloxanes, processes**
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process)
(impregnation precursors; preparation of C/Si/O oxidation-resistant composites by impregnation of expanded graphite with crosslinkable **silanes**

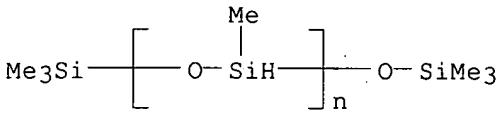
or **siloxanes** and heat treatment)
IT Ceramic composites
Crosslinking
Heat treatment
(preparation of C/Si/O oxidation-resistant composites by impregnation of expanded graphite with crosslinkable **silanes** or **siloxanes** and heat treatment)
IT 7440-37-1, Argon, uses
RL: NUU (Other use, unclassified); USES (Uses)
(atmospheric; preparation of C/Si/O oxidation-resistant composites by impregnation of
expanded graphite with crosslinkable **silanes** or **siloxanes** and heat treatment)
IT **7782-42-5**, Graphite, processes
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process)
(expanded, precursor; preparation of C/Si/O oxidation-resistant composites by
impregnation of expanded graphite with crosslinkable **silanes** or **siloxanes** and heat treatment)
IT **2554-06-5**, LS-8670 **26403-67-8**, KF-99
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process)
(precursor; preparation of C/Si/O oxidation-resistant composites by impregnation of expanded graphite with crosslinkable **silanes** or **siloxanes** and heat treatment)
IT 7440-06-4, Platinum, uses
RL: CAT (Catalyst use); USES (Uses)
(preparation of C/Si/O oxidation-resistant composites by impregnation of expanded graphite with crosslinkable **silanes** or **siloxanes** and heat treatment)
IT 108-88-3, Toluene, uses
RL: NUU (Other use, unclassified); USES (Uses)
(solvent; preparation of C/Si/O oxidation-resistant composites by impregnation
of expanded graphite with crosslinkable **silanes** or **siloxanes** and heat treatment)
IT **7782-42-5**, Graphite, processes
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process)
(expanded, precursor; preparation of C/Si/O oxidation-resistant composites by
impregnation of expanded graphite with crosslinkable **silanes** or **siloxanes** and heat treatment)
RN 7782-42-5 HCAPLUS
CN Graphite (CA INDEX NAME)

C

IT **2554-06-5**, LS-8670 **26403-67-8**, KF-99
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process)
(precursor; preparation of C/Si/O oxidation-resistant composites by impregnation of expanded graphite with crosslinkable **silanes** or **siloxanes** and heat treatment)
RN 2554-06-5 HCAPLUS
CN Cyclotetrasiloxane, 2,4,6,8-tetraethenyl-2,4,6,8-tetramethyl- (CA INDEX NAME)



RN 26403-67-8 HCAPLUS
CN Poly[oxy(methylsilylene)], α-(trimethylsilyl)-ω-[(trimethylsilyl)oxy]- (CA INDEX NAME)



RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Hayward	1996			US 5582781 A	HCAPLUS
Ichikawa	1991			US 5037699 A	HCAPLUS
Leiser	2001			US 6225248 B1	HCAPLUS

L103 ANSWER 17 OF 36 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2003:396328 HCAPLUS
DN 138:371776
TI **Nonaqueous** electrolyte **secondary battery** with inhibited electrolyte decomposition and increased fire retardancy
IN Miyake, Masahide; Fujimoto, Masahisa; Koga, Hideyuki; Tarui, Hisaki; Fujitani, Shin; Kida, Yoshinori
PA Sanyo Electric Co., Ltd., Japan
SO U.S. Pat. Appl. Publ., 10 pp.
CODEN: USXXCO
DT **Patent**
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2003096163	A1	20030522	US 2002-281172	20021028 <--
	US 6855457	B2	20050215		
	JP 2003203674	A	20030718	JP 2002-300732	20021015 <--
PRAI	JP 2001-330288	A	20011029 <--		
	JP 2002-300732	A	20021015 <--		

AB A **nonaq.** electrolyte **secondary battery** comprises a pos. **electrode** made from a material which is capable of **occluding** and discharging anions, a **neg.** **electrode** made from a material which is capable of **occluding** and discharging cations, and a **nonaq.** electrolyte containing a room temperature molten salt having a m.p. of not greater

than 60°.
IC ICM **H01M0010-40**
INCL 429188000; 429103000; 429231800; 429231950
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **battery** inhibited electrolyte decompn increased fire retardancy; molten salt room temp **battery** electrolyte
IT **Battery electrolytes**
Secondary batteries
(**nonaq.** electrolyte **secondary battery** with inhibited electrolyte decomposition and increased fire retardancy)
IT Quaternary ammonium compounds, uses
RL: DEV (Device component use); USES (Uses)
(**nonaq.** electrolyte **secondary battery** with inhibited electrolyte decomposition and increased fire retardancy)
IT Fire
(retardancy; **nonaq.** electrolyte **secondary battery** with inhibited electrolyte decomposition and increased fire retardancy)
IT 105-58-8, Diethyl carbonate **7440-21-3, Silicon**, uses **7782-42-5**, Graphite, uses 7791-03-9, **Lithium** perchlorate 14283-07-9, **Lithium** tetrafluoroborate 21324-40-3, **Lithium** hexafluorophosphate 29935-35-1, **Lithium** hexafluoroarsenate 33454-82-9, **Lithium** triflate 90076-65-6 131651-65-5, **Lithium** perfluorobutanesulfonate 132843-44-8 173274-74-3 210230-43-6 210230-45-8 268536-03-4 268536-05-6 338746-29-5 481629-39-4 481629-42-9 481629-43-0 497220-96-9
RL: DEV (Device component use); USES (Uses)
(**nonaq.** electrolyte **secondary battery** with inhibited electrolyte decomposition and increased fire retardancy)
IT **7440-21-3, Silicon**, uses **7782-42-5**, Graphite, uses
RL: DEV (Device component use); USES (Uses)
(**nonaq.** electrolyte **secondary battery** with inhibited electrolyte decomposition and increased fire retardancy)
RN 7440-21-3 HCAPLUS
CN Silicon (CA INDEX NAME)

Si

RN 7782-42-5 HCAPLUS
CN Graphite (CA INDEX NAME)

C

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Anon	1993			JP 05159773 A	HCAPLUS
Anon	1997			JP 09120816 A	HCAPLUS
Anon	1999			JP 11097069 A	HCAPLUS
Anon	2000			JP 2000077100 A	HCAPLUS
Armand	1995			US 5446134 A	HCAPLUS
Boehm, H	1988	23	395	Synthetic Metals	HCAPLUS
Caja	2001			US 6326104 B1	HCAPLUS

Fanta	2001			US 6294289 B1	HCAPLUS
Guidotti	2003			US 6544691 B1	HCAPLUS
Hamrock	2000			US 6063522 A	HCAPLUS
Kalnin	1987			US 4707423 A	HCAPLUS
Krause	1997			US 5691081 A	HCAPLUS
Lamanna	1997			US 5652072 A	HCAPLUS
MacDiarmid	1984			US 4442187 A	HCAPLUS
Michot	2001			US 6296973 B1	HCAPLUS
Zhang	1999	34	363	Materials Research B	HCAPLUS
Zhang, X	2000	340	37	Mol. Cryst. and Liq.	HCAPLUS

L103 ANSWER 18 OF 36 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2003:5013 HCAPLUS
DN 138:42071
TI **Battery anode** material containing a magnesium compound
IN Yamada, Shinichiro; Inoue, Hiroshi; Endo, Takuya
PA Sony Corporation, Japan
SO Eur. Pat. Appl., 13 pp.
CODEN: EPXXDW
DT **Patent**
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1271676	A1	20030102	EP 2002-12747	20020607 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
	JP 2003017048	A	20030117	JP 2001-195104	20010627 <--
	JP 3533664	B2	20040531		
	US 2003013018	A1	20030116	US 2002-171117	20020613 <--
	US 7097938	B2	20060829		
PRAI	JP 2001-195104	A	20010627 <--		

AB A **neg. electrode** material and a **battery** which has an excellent cycle characteristic as well as a high capacity are provided. A pos. **electrode** housed in an exterior can and a **neg. electrode** housed in an exterior cup are laminated with a separator there between. An electrolytic solution of **lithium** salt dissolved in a solvent is poured into the inside of both the exterior can and the exterior cup. The **neg. electrode** contains Mg2-xMIIxMI. MI expresses a first element such as Si, Sn, Ge, Pb, or the like. MII expresses a second element which is a metallic element, preferably Mn, Cu, Zn, or the like except both Mg and the first element. The x is preferably in the range of $0.1 \leq x \geq 1.9$. Substituting part of Mg by the second element MII can produce the distortion of the crystal structure, ease distortion accompanying the **occluding/releasing lithium**, and improve the charge and discharge efficiency and the cycle characteristic.

IC ICM **H01M0004-38**
ICS **H01M0004-46**
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **battery anode** magnesium compd contg
IT **Battery anodes**
Secondary batteries
(**battery anode** material containing magnesium compound)
IT Carbonaceous materials (technological products)
Graphitized carbon black
RL: DEV (Device component use); USES (Uses)
(**battery anode** material containing magnesium compound)
IT **7440-44-0**, Carbon, uses **7782-42-5**, Graphite, uses
478396-94-0, Magnesium manganese **silicide** (Mg1.9Mn0.1Si)

478396-96-2, Magnesium manganese **silicide** (Mg1.5Mn0.5Si)
478396-98-4, Magnesium manganese **silicide** (MgMnSi)
478397-01-2, Magnesium manganese **silicide** (Mg0.5Mn1.5Si)
478397-03-4, Copper magnesium **silicide** (Cu0.5Mg1.5Si)
478397-05-6, Magnesium zinc **silicide** (Mg1.5Zn0.5Si)
RL: DEV (Device component use); USES (Uses)
(**battery anode** material containing magnesium compound)
IT **7440-44-0**, Carbon, uses **7782-42-5**, Graphite, uses
RL: DEV (Device component use); USES (Uses)
(**battery anode** material containing magnesium compound)
RN 7440-44-0 HCAPLUS
CN Carbon (CA INDEX NAME)

C

RN 7782-42-5 HCAPLUS
CN Graphite (CA INDEX NAME)

C

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Alcan Int Ltd	1989			EP 0323888 A	HCAPLUS
Alusuisse Lonza Service	1992			CH 679437 A	HCAPLUS
Huggins, R	1990			US 4950566 A	HCAPLUS
Matsushita Electric Ind	2001			EP 1096583 A	HCAPLUS
Olin, M	1966			GB 1045321 A	
Yamamoto, I	1986			US 4631172 A	HCAPLUS

L103 ANSWER 19 OF 36 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2002:976165 HCAPLUS
DN 138:42052
TI **Anode** material containing coated **silicon** oxide for secondary nonaqueous-electrolyte **battery**
IN **Miyawaki, Satoru; Aramata, Mikio; Fukuoka, Hirofumi; Ueno, Susumu**
PA **Shin-Etsu Chemical Industry Co., Ltd., Japan**
SO Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DT **Patent**
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002373653	A	20021226	JP 2001-181830	20010615 <--
PRAI	JP 2001-181830		20010615 <--		

AB The title **anode** material contains conductive SiOx powder containing SiOx having average particle size d50(A) 0.2-20 μm coated with a conductive substance having average particle size d50(B) 20 nm to 13 μm [where d50(A)/d50(B) ≥1.5] by mech. surface fusion treatment. Preferably, the **anode** contains SiOx (x = 0.6-1.5). The resulting **battery** has high capacity and long cycle life.
IC ICM **H01M0004-58**
ICS C01B0033-113; **H01M0004-02**; **H01M0004-04**;

H01M0010-40
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **silicon** oxide **anode** secondary nonaq **battery**
IT **Battery anodes**
(**anode** material containing coated **silicon** oxide for secondary nonaq.-electrolyte **battery**)
IT **113443-18-8P, Silicon** oxide (SiO)
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PNU (Preparation, unclassified); PYP (Physical process); PREP (Preparation); PROC (Process); USES (Uses)
(**anode** material containing coated **silicon** oxide for secondary nonaq.-electrolyte **battery**)
IT **7782-42-5P**, Graphite, uses
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PNU (Preparation, unclassified); PYP (Physical process); PREP (Preparation); PROC (Process); USES (Uses)
(coating; **anode** material containing coated **silicon** oxide for secondary nonaq.-electrolyte **battery**)
IT **113443-18-8P, Silicon** oxide (SiO)
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PNU (Preparation, unclassified); PYP (Physical process); PREP (Preparation); PROC (Process); USES (Uses)
(**anode** material containing coated **silicon** oxide for secondary nonaq.-electrolyte **battery**)
RN 113443-18-8 HCAPLUS
CN Silicon oxide (SiO) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1	17778-80-2
Si	1	7440-21-3

IT **7782-42-5P**, Graphite, uses
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PNU (Preparation, unclassified); PYP (Physical process); PREP (Preparation); PROC (Process); USES (Uses)
(coating; **anode** material containing coated **silicon** oxide for secondary nonaq.-electrolyte **battery**)
RN 7782-42-5 HCAPLUS
CN Graphite (CA INDEX NAME)

C

L103 ANSWER 20 OF 36 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2002:693380 HCAPLUS
DN 137:235196
TI Secondary nonaqueous electrolyte **battery**
IN **Fukuoka, Hirofumi; Aramata, Mikio; Miyawaki, Satoru; Ueno, Susumu**
PA **Shin-Etsu Chemical Industry Co., Ltd., Japan**
SO Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DT **Patent**
LA Japanese
FAN.CNT 1
PATENT NO. KIND DATE APPLICATION NO. DATE

PI	JP 2002260669	A	20020913	JP 2001-53907	20010228 <--
PRAI	JP 2001-53907		20010228 <--		

AB A secondary Li **battery** uses an **anode** collector having a vapor deposited amorphous Si layer. The **anode** active mass is preferably a carbonaceous material, which may also contain SiO0.8-1.9.

IC ICM **H01M0004-66**
ICS **H01M0004-02; H01M0004-58; H01M0010-40**

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST secondary lithium **battery anode** collector amorphous **silicon** coating; vapor deposit amorphous **silicon** coating **battery anode** collector; carbonaceous **anode** **silicon** oxide secondary lithium **battery**

IT **Battery anodes**
(collectors with vapor deposited amorphous **silicon** layers for carbonaceous **anodes** in secondary lithium **batteries**)

IT **12060-65-0, Silicon** oxide (SiO1.05) **457905-35-0**
, **Silicon** oxide (SiO1.55)
RL: DEV (Device component use); USES (Uses)
(collectors with vapor deposited amorphous **silicon** layers for **silicon** oxide containing graphite **anodes** in secondary lithium **batteries**)

IT 7440-50-8, Copper, uses
RL: DEV (Device component use); USES (Uses)
(copper collectors with vapor deposited amorphous **silicon** layers for carbonaceous **anodes** in secondary lithium **batteries**)

IT **7440-21-3, Silicon**, uses
RL: MOA (Modifier or additive use); USES (Uses)
(copper collectors with vapor deposited amorphous **silicon** layers for carbonaceous **anodes** in secondary lithium **batteries**)

IT **7782-42-5**, Graphite, uses
RL: DEV (Device component use); USES (Uses)
(copper collectors with vapor deposited amorphous **silicon** layers for graphite **anodes** in secondary lithium **batteries**)

IT **12060-65-0, Silicon** oxide (SiO1.05) **457905-35-0**
, **Silicon** oxide (SiO1.55)
RL: DEV (Device component use); USES (Uses)
(collectors with vapor deposited amorphous **silicon** layers for **silicon** oxide containing graphite **anodes** in secondary lithium **batteries**)

RN 12060-65-0 HCAPLUS
CN Silicon oxide (Si2O3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Si	2	7440-21-3

RN 457905-35-0 HCAPLUS
CN Silicon oxide (SiO1.55) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.55	17778-80-2
Si	1	7440-21-3

IT **7440-21-3, Silicon**, uses
RL: MOA (Modifier or additive use); USES (Uses)
(copper collectors with vapor deposited amorphous **silicon** layers for carbonaceous **anodes** in secondary lithium **batteries**)
RN 7440-21-3 HCAPLUS
CN Silicon (CA INDEX NAME)

Si

IT **7782-42-5**, Graphite, uses
RL: DEV (Device component use); USES (Uses)
(copper collectors with vapor deposited amorphous **silicon** layers for graphite **anodes** in secondary lithium **batteries**)
RN 7782-42-5 HCAPLUS
CN Graphite (CA INDEX NAME)

C

L103 ANSWER 21 OF 36 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2002:486325 HCAPLUS
DN 137:35551
TI **Nonaqueous** electrolyte **secondary battery** with improved safety
IN Saisho, Keiji; Watanabe, Hiroshi; Nakane, Ikuro; Narukawa, Satoshi; Tsujioka, Norio
PA Sanyo Electric Co., Ltd., Japan
SO Eur. Pat. Appl., 25 pp.
CODEN: EPXXDW
DT **Patent**
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1217671	A2	20020626	EP 2001-130748	20011221 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
	JP 2002190294	A	20020705	JP 2000-389685	20001222 <--
	US 2002146619	A1	20021010	US 2001-24393	20011221 <--
	US 6818354	B2	20041116		
	CN 1366358	A	20020828	CN 2001-133852	20011224 <--
PRAI	JP 2000-389685	A	20001222 <--		

AB In a **nonaq. secondary** cell having a pos. **electrode**, a **neg. electrode**, a **nonaq**. electrolyte, a separator interposed between the pos. **electrode** and the **neg. electrode**, the pos. **electrode** having a pos. **electrode** active material including a chemical compound capable of reversibly intercalating **lithium** and the **neg**. **electrode** having a **neg. electrode** active material including a material capable of reversibly intercalating **lithium**, the separator has through holes formed therein for passing **lithium** dendrites there-through.
IC ICM **H01M0002-18**

ICS **H01M0010-40**
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **battery nonaq secondary** improved safety;
safety improvement **battery nonaq secondary**
IT **Secondary batteries**
(**lithium; nonaq.** electrolyte **secondary**
battery with improved safety)
IT Safety
Secondary battery separators
(**nonaq.** electrolyte **secondary battery**
with improved safety)
IT Fluoropolymers, uses
Polyoxyalkylenes, uses
RL: DEV (Device component use); USES (Uses)
(**nonaq.** electrolyte **secondary battery**
with improved safety)
IT 1332-29-2, Tin oxide **7440-21-3, Silicon**, uses
7782-42-5, Graphite, uses 9011-14-7, Pmma 24937-79-9, Pvdf
25322-68-3, Peo
RL: DEV (Device component use); USES (Uses)
(**nonaq.** electrolyte **secondary battery**
with improved safety)
IT **7440-21-3, Silicon**, uses **7782-42-5**, Graphite,
uses
RL: DEV (Device component use); USES (Uses)
(**nonaq.** electrolyte **secondary battery**
with improved safety)
RN 7440-21-3 HCAPLUS
CN Silicon (CA INDEX NAME)

Si

RN 7782-42-5 HCAPLUS
CN Graphite (CA INDEX NAME)

C

L103 ANSWER 22 OF 36 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2002:466586 HCAPLUS
DN 137:22410
TI **Lithium**-aluminum dual-cation rechargeable electrochemical
battery cell
IN Amatucci, Glenn G.
PA USA
SO U.S. Pat. Appl. Publ., 9 pp.
CODEN: USXXCO
DT **Patent**
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2002076618	A1	20020620	US 2000-739566	20001218 <--
	US 6482548	B2	20021119		
PRAI	US 2000-739566		20001218 <--		

AB A rechargeable **battery** cell having high operating voltage and

significantly increased specific capacity comprises a pos. **electrode** member, a **neg. electrode** member, and an interposed separator member containing an electrolyte comprising a solution of a polyvalent aluminum cation solute in a **nonaq.** solvent. The pos. **electrode** member comprises an active material which reversibly takes up and **releases** the reactive polyvalent cation species during operation of the cell while the active material of the **neg. electrode** contemporaneously reversibly **releases** into and takes up from the electrolyte solvent a monovalent cation species. Preferred cation species are those of aluminum, such as Al3+, and alkali metals, such as **Li+**.

IC ICM **H01M0010-40**
ICS **H01M0004-48; H01M0004-58**
INCL 429324000; X42-923.15; X42-923.14
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **lithium** aluminum dual cation rechargeable **battery**
IT Alloys, uses
RL: DEV (Device component use); USES (Uses)
(alkali metal; **lithium**-aluminum dual-cation rechargeable electrochem. **battery** cell)
IT Alkali metals, uses
RL: DEV (Device component use); USES (Uses)
(alloys; **lithium**-aluminum dual-cation rechargeable electrochem. **battery** cell)
IT Transition metal halides
RL: DEV (Device component use); USES (Uses)
(fluorides; **lithium**-aluminum dual-cation rechargeable electrochem. **battery** cell)
IT Alkali metals, uses
Carbonaceous materials (technological products)
Transition metal oxides
Transition metal sulfides
RL: DEV (Device component use); USES (Uses)
(**lithium**-aluminum dual-cation rechargeable electrochem. **battery** cell)
IT Carbon black, uses
RL: MOA (Modifier or additive use); USES (Uses)
(**lithium**-aluminum dual-cation rechargeable electrochem. **battery** cell)
IT **Secondary batteries**
(**lithium**; **lithium**-aluminum dual-cation rechargeable electrochem. **battery** cell)
IT Fluorides, uses
RL: DEV (Device component use); USES (Uses)
(transition metal; **lithium**-aluminum dual-cation rechargeable electrochem. **battery** cell)
IT **Lithium** alloy, base
Sodium alloy, base
RL: DEV (Device component use); USES (Uses)
(**lithium**-aluminum dual-cation rechargeable electrochem. **battery** cell)
IT 96-49-1, Ethylene carbonate 616-38-6, Dimethyl carbonate 1314-62-1, Vanadium pentoxide, uses 7439-93-2, **Lithium**, uses **7440-21-3**, **Silicon**, uses 7440-23-5, Sodium, uses **7440-44-0D**, Carbon, fluorides 12612-50-9, Molybdenum sulfide 14017-56-2, Yttrium perchlorate 17341-24-1, uses 17341-25-2, Sodium ion, uses 18459-37-5, Cesium ion, uses 21324-40-3, **Lithium** hexafluorophosphate 22537-23-1, Aluminum(3+), uses 22537-38-8, Rubidium ion, uses 24203-36-9, Potassium ion, uses 33454-82-9,

Lithium triflate 74974-61-1, Aluminum triflate
RL: DEV (Device component use); USES (Uses)
(**lithium**-aluminum dual-cation rechargeable electrochem. **battery** cell)
IT 68848-64-6
RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)
(**lithium**-aluminum dual-cation rechargeable electrochem. **battery** cell)
IT 84-74-2, Dibutyl phthalate 9011-17-0, Kynar 2801
RL: MOA (Modifier or additive use); USES (Uses)
(**lithium**-aluminum dual-cation rechargeable electrochem. **battery** cell)
IT **7440-21-3**, **Silicon**, uses **7440-44-0D**, Carbon, fluorides
RL: DEV (Device component use); USES (Uses)
(**lithium**-aluminum dual-cation rechargeable electrochem. **battery** cell)
RN 7440-21-3 HCAPLUS
CN Silicon (CA INDEX NAME)

Si

RN 7440-44-0 HCAPLUS
CN Carbon (CA INDEX NAME)

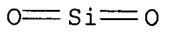
C

L103 ANSWER 23 OF 36 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2001:830845 HCAPLUS
DN 135:360225
TI **Lithium** polymer **secondary battery**
IN Morigaki, Kenichi; Murata, Toshihide; Shibano, Yasuyuki; Eda, Nobuo
PA Matsushita Electric Industrial Co., Ltd., Japan
SO Eur. Pat. Appl., 10 pp.
CODEN: EPXXDW
DT **Patent**
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1154508	A2	20011114	EP 2001-110976	20010507 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	JP 2001319689	A	20011116	JP 2000-135104	20000508 <--
	US 2001041290	A1	20011115	US 2001-846505	20010501 <--
	CN 1323075	A	20011121	CN 2001-117930	20010508 <--
PRAI	JP 2000-135104	A	20000508 <--		

AB To obtain highly reliable **lithium** polymer **secondary batteries** with charge/discharge cycle characteristics equivalent to those of **lithium** ion **secondary batteries**, 70-90% of the total void volume of an **electrode** group formed by laminating the pos. **electrode**, **neg. electrode** and separator is filled with a **nonaq.** electrolyte.
IC ICM **H01M0010-40**
ICS **H01M0002-16**

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38
ST **lithium** polymer **secondary battery**
IT **Battery electrolytes**
(**lithium** polymer **secondary battery**)
IT Acrylic polymers, uses
Fluoropolymers, uses
Polyoxyalkylenes, uses
RL: DEV (Device component use); USES (Uses)
(**lithium** polymer **secondary battery**)
IT Carbon black, uses
RL: MOA (Modifier or additive use); USES (Uses)
(**lithium** polymer **secondary battery**)
IT **Secondary batteries**
(**lithium**; **lithium** polymer **secondary battery**)
IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 623-53-0, Ethyl methyl carbonate 7440-50-8, Copper, uses **7631-86-9**, **Silica**, uses **7782-42-5**, Graphite, uses 12190-79-3, Cobalt **lithium** oxide colio2 21324-40-3, **Lithium** hexafluorophosphate 24937-79-9, Pvdf 25852-47-5 132843-44-8
RL: DEV (Device component use); USES (Uses)
(**lithium** polymer **secondary battery**)
IT 9011-17-0, Hexafluoropropylene-vinylidene fluoride copolymer
RL: MOA (Modifier or additive use); USES (Uses)
(**lithium** polymer **secondary battery**)
IT 84-74-2, Dibutyl phthalate 872-50-4, n-Methyl-2-pyrrolidone, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(**lithium** polymer **secondary battery**)
IT **7631-86-9**, **Silica**, uses **7782-42-5**, Graphite, uses
RL: DEV (Device component use); USES (Uses)
(**lithium** polymer **secondary battery**)
RN 7631-86-9 HCAPLUS
CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



RN 7782-42-5 HCAPLUS
CN Graphite (CA INDEX NAME)

L103 ANSWER 24 OF 36 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2001:796403 HCAPLUS
DN 135:346864
TI **Cathode** for **nonaqueous** electrolyte **lithium** ion **battery**
IN Yamada, Atsuo; Yamahira, Takayuki
PA Sony Corporation, Japan
SO Eur. Pat. Appl., 26 pp.
CODEN: EPXXDW
DT **Patent**
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE	
PI	EP 1150368	A2	20011031	EP 2001-109919	20010424	<--
	EP 1150368	A3	20051026			
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO					
	JP 2001307730	A	20011102	JP 2000-128998	20000425	<--
	TW 533617	B	20030521	TW 2001-90109790	20010424	<--
	CA 2344981	A1	20011025	CA 2001-2344981	20010425	<--
	CN 1320976	A	20011107	CN 2001-117211	20010425	<--
	US 2002004169	A1	20020110	US 2001-842485	20010425	<--
	US 6746799	B2	20040608			
PRAI	JP 2000-128998	A	20000425	<--		

AB The **lithium** ion cell is improved appreciably in operational stability under special conditions, such as high temps., and exhibits superior characteristics against over-discharging, while guaranteeing compatibility to the operating voltage of a conventional **lithium** ion cell and an energy d. equivalent to that of the conventional **lithium** ion cell. To this end, the **lithium** ion cell includes a pos. **electrode**, a **neg. electrode** and a **nonaq**. electrolyte, and uses, as a pos. **electrode** active material, a composite material of a first **lithium** compound represented by the general formula LixMyPO4, where 0 <x< 2, 0.8 <y< 1.2 and M contains Fe, and a second **lithium** compound having a potential holder than the potential of the first **lithium** compound

IC ICM **H01M0004-58**
ICS C01G0049-00; C01B0025-30; C01B0025-45; **H01M0004-38**

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST **lithium nonaq** electrolyte **cathode**

IT Charcoal
RL: DEV (Device component use); USES (Uses)
(activated; **cathode** for **nonaq**. electrolyte **lithium** ion **battery**)

IT **Battery cathodes**
(**cathode** for **nonaq**. electrolyte **lithium** ion **battery**)

IT Carbon fibers, uses
Carbonaceous materials (technological products)
Coke
Petroleum coke
RL: DEV (Device component use); USES (Uses)
(**cathode** for **nonaq**. electrolyte **lithium** ion **battery**)

IT Carbon black, uses
RL: MOA (Modifier or additive use); USES (Uses)
(**cathode** for **nonaq**. electrolyte **lithium** ion **battery**)

IT Fluoropolymers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(**cathode** for **nonaq**. electrolyte **lithium** ion **battery**)

IT Organic compounds, uses
RL: DEV (Device component use); USES (Uses)
(high mol., sintered; **cathode** for **nonaq**. electrolyte **lithium** ion **battery**)

IT **Secondary batteries**
(**lithium**; **cathode** for **nonaq**. electrolyte **lithium** ion **battery**)

IT Coke
RL: DEV (Device component use); USES (Uses)

(needle; **cathode** for **nonaq.** electrolyte **lithium** ion **battery**)

IT Coke
RL: DEV (Device component use); USES (Uses)
(pitch; **cathode** for **nonaq.** electrolyte **lithium** ion **battery**)

IT Furan resins
Phenolic resins, uses
RL: DEV (Device component use); USES (Uses)
(sintered and carbonized; **cathode** for **nonaq.** electrolyte **lithium** ion **battery**)

IT 50-21-5D, Lactic acid, ester 60-29-7, Diethyl ether, uses 64-19-7D, Acetic acid, ester, uses 75-05-8, Acetonitrile, uses 79-09-4D, Propionic acid, ester 96-47-9, 2-Methyltetrahydrofuran 96-48-0 96-49-1, Ethylene carbonate 100-66-3, Anisole, uses 105-58-8, Diethyl carbonate 107-12-0, Propionitrile 108-32-7, Propylene carbonate 109-99-9, Thf, uses 110-71-4, 1,2-Dimethoxyethane 126-33-0, Sulfolane 409-21-2, **Silicon** carbide sic, uses 554-12-1, Methyl propionate 616-38-6, Dimethyl carbonate 623-42-7, Methyl butyrate 623-96-1, Dipropyl carbonate 629-14-1, 1,2-Diethoxyethane 646-06-0, 1,3-Dioxolane 872-36-6, Vinylene carbonate 1072-47-5, 4-Methyl-1,3-dioxolane 1313-08-2 2550-62-1, **Lithium** methanesulfonate 4437-85-8, Butylene carbonate 7439-93-2, **Lithium**, uses 7440-50-8, Copper, uses 7447-41-8, **Lithium** chloride, uses 7550-35-8, **Lithium** bromide **7782-42-5**, Graphite, uses 7791-03-9, **Lithium** perchlorate 9003-07-0, Polypropylene 12007-81-7, **Silicon** tetraboride 12008-29-6, **Silicon** hexaboride 12013-56-8, Calcium **disilicide** 12017-12-8, Cobalt **disilicide** 12018-09-6, Chromium **disilicide** 12022-99-0, Iron **disilicide** 12032-86-9, Manganese **disilicide** **12033-76-0**, **Silicon** nitride oxide Si2N2O 12033-89-5, **Silicon** nitride, uses 12034-80-9, Niobium **disilicide** 12039-79-1, Tantalum **disilicide** 12039-83-7, Titanium **silicide** TiSi2 12039-87-1, Vanadium **disilicide** 12039-88-2, Tungsten **disilicide** 12059-14-2, Nickel **silicide** (Ni2Si) 12136-78-6, Molybdenum **disilicide** 12159-07-8, Copper **silicide** cu5si 12190-79-3, Cobalt **lithium** oxide colio2 12201-89-7, Nickel **disilicide** 14283-07-9, **Lithium** tetrafluoroborate 14485-20-2, **Lithium** tetraphenylborate 15365-14-7, Iron **lithium** phosphate FeLiPO4 19414-36-9, Iron **lithium** manganese phosphate ((Fe,Mn)**Li**(PO4)) 21324-40-3, **Lithium** hexafluorophosphate 22831-39-6, Magnesium **silicide** (Mg2Si) 29935-35-1, **Lithium** hexafluoroarsenate 33454-82-9, **Lithium** trifluoromethanesulfonate 35678-71-8, Methylsulfolane 90076-65-6 113066-89-0, Cobalt **lithium** nickel oxide Co0.2LiNi0.8O2 **113671-38-8**, **Silicon** oxide SiO0-2 160479-36-7, **Lithium** tin oxide **178958-56-0**, **Lithium silicon** oxide 300858-61-1 339333-78-7, Zinc **silicide** ZnSi2 371148-86-6, Tin oxide (SnO0-2) 371148-87-7, **Lithium** magnesium manganese oxide (LiMg0.2Mn0.8O2)
RL: DEV (Device component use); USES (Uses)
(**cathode** for **nonaq.** electrolyte **lithium** ion **battery**)

IT 24937-79-9, Pvdf
RL: TEM (Technical or engineered material use); USES (Uses)
(**cathode** for **nonaq.** electrolyte **lithium** ion **battery**)

IT **7440-44-0**, Carbon, uses

RL: DEV (Device component use); USES (Uses)
(pyrocarbon; **cathode** for **nonaq.** electrolyte **lithium** ion **battery**)

IT **7782-42-5**, Graphite, uses **12033-76-0**, **Silicon** nitride oxide Si2N2O **113671-38-8**, **Silicon** oxide SiO0-2 **178958-56-0**, **Lithium silicon** oxide
RL: DEV (Device component use); USES (Uses)
(**cathode** for **nonaq.** electrolyte **lithium** ion **battery**)

RN 7782-42-5 HCAPLUS
CN Graphite (CA INDEX NAME)

C

RN 12033-76-0 HCAPLUS
CN Silicon nitride oxide (Si2N2O) (CA INDEX NAME)

Component	Ratio	Component Registry Number
N	2	17778-88-0
O	1	17778-80-2
Si	2	7440-21-3

RN 113671-38-8 HCAPLUS
CN Silicon oxide (SiO0-2) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	0 - 2	17778-80-2
Si	1	7440-21-3

RN 178958-56-0 HCAPLUS
CN Lithium silicon oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Si	x	7440-21-3
Li	x	7439-93-2

IT **7440-44-0**, Carbon, uses
RL: DEV (Device component use); USES (Uses)
(pyrocarbon; **cathode** for **nonaq.** electrolyte **lithium** ion **battery**)

RN 7440-44-0 HCAPLUS
CN Carbon (CA INDEX NAME)

C

L103 ANSWER 25 OF 36 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2001:729929 HCAPLUS
DN 135:275368

TI Material for **cathode** of **nonaqueous** electrolyte **secondary battery**

IN Tsujimoto, Hisashi; Yamamoto, Yoshikatsu; Kuyama, Junji; Nagamine, Masayuki; Omaru, Atsuo; Tanizaki, Hiroaki

PA Sony Corp., Japan

SO Eur. Pat. Appl., 19 pp.
CODEN: EPXXDW

DT **Patent**

LA English

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI EP 1139468	A1	20011004	EP 2001-108038	20010329 <--
EP 1139468	B1	20040519		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 2001345101	A	20011214	JP 2001-56346	20010301 <--
TW 492212	B	20020621	TW 2001-90107405	20010328 <--
CN 1320980	A	20011107	CN 2001-117869	20010330 <--
US 2002012842	A1	20020131	US 2001-822926	20010330 <--
US 6884543	B2	20050426		
US 2005191551	A1	20050901	US 2005-113771	20050425 <--
US 7045251	B2	20060516		
PRAI JP 2000-93378	A	20000330 <--		
JP 2001-56346	A	20010301 <--		
US 2001-822926	A1	20010330 <--		

AB Disclosed is a **nonaq.** electrolyte **secondary battery** having an excellent preservation characteristics at a high temperature and charging/discharging cycle characteristics. A rolled body in which a strip-shape pos. **electrode** and **neg.** **electrode** are rolled with a separator in-between is provided inside a **battery** can. The pos. **electrode** contains LixMn2-yMayO4 (where, Ma is at least one element selected from the group consisting of metal elements other than Mn, and B) and LiNi1-zMbzO2 (where, Mb is at least one element selected from the group consisting of metal elements other than Ni, and B). By replacing part of Mn and Ni with other elements, the crystal structure can be stabilized. Thereby, the capacity retention ratio after preservation at a high temperature, and a heavy load discharging power under a high elec. potential cutoff can be improved. The mean particle size of particles of the above-mentioned oxides are preferable to be 30 μm and below so that an excellent charging/discharging cycle characteristic can be obtained.

IC ICM **H01M0004-50**
ICS **H01M0004-52**

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST **nonaq** electrolyte **battery cathode**

IT Polymers, uses
RL: DEV (Device component use); USES (Uses)
(calcined material; material for **cathode** of **nonaq.** electrolyte **secondary battery**)

IT **Secondary batteries**
(**lithium**; material for **cathode** of **nonaq.** electrolyte **secondary battery**)

IT **Battery cathodes**
Particle size
(material for **cathode** of **nonaq.** electrolyte **secondary battery**)

IT Carbon black, uses
Carbon fibers, uses
Coke

Esters, uses
RL: DEV (Device component use); USES (Uses)
(material for **cathode** of **nonaq.** electrolyte **secondary battery**)

IT **7440-44-0**, Glassy carbon, uses
RL: DEV (Device component use); USES (Uses)
(glassy; material for **cathode** of **nonaq.** electrolyte **secondary battery**)

IT 60-29-7, Diethyl ether, uses 75-05-8, Acetonitrile, uses 96-47-9, 2-Methyltetrahydrofuran 96-48-0, γ-Butyrolactone 96-49-1, Ethylene carbonate 100-66-3, Anisole, uses 105-58-8, Diethyl carbonate 107-12-0, Propionitrile 108-32-7, Propylene carbonate 109-99-9, Thf, uses 110-71-4, 1,2-Dimethoxyethane 126-33-0, Sulfolane 616-38-6, Dimethyl carbonate 629-14-1, 1,2-Diethoxyethane 646-06-0, 1,3-Dioxolane 1072-47-5, 4-Methyl-1,3-dioxolane **7440-21-3**, **Silicon**, uses 7440-31-5, Tin, uses **7782-42-5**, Graphite, uses 22831-39-6, magnesium **silicide** mg2si 35678-71-8, Methylsulfolane 71818-44-5
RL: DEV (Device component use); USES (Uses)
(material for **cathode** of **nonaq.** electrolyte **secondary battery**)

IT 12057-17-9P, **lithium** manganese oxide LiMn2O4 101920-93-8P, Cobalt **lithium** nickel oxide Co0.5LiNi0.5O2 113066-89-0P, Cobalt **lithium** nickel oxide Co0.2LiNi0.8O2 130260-87-6P, Chromium **lithium** manganese oxide Cr0.1LiMn1.9O4 130917-43-0P, Chromium **lithium** manganese oxide Cr0.2LiMn1.8O4 132266-92-3P, Chromium **lithium** manganese oxide Cr0.2Li0.9Mn1.8O4 167996-59-0P, Cobalt **lithium** nickel oxide Co0.01LiNi0.99O2 171261-66-8P, Chromium **lithium** manganese oxide Cr0.5LiMn1.5O4 208840-54-4P, Cobalt **lithium** nickel oxide Co0.2Li0.9Ni0.8O2 245429-22-5P, Cobalt **lithium** nickel oxide Co0.2Li1.1Ni0.8O2 364069-87-4P, Chromium **lithium** manganese oxide (Cr0.2Li1.1Mn1.8O4)
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(material for **cathode** of **nonaq.** electrolyte **secondary battery**)

IT **7440-44-0**, Glassy carbon, uses
RL: DEV (Device component use); USES (Uses)
(glassy; material for **cathode** of **nonaq.** electrolyte **secondary battery**)

RN 7440-44-0 HCAPLUS
CN Carbon (CA INDEX NAME)

C

IT **7440-21-3**, **Silicon**, uses **7782-42-5**, Graphite, uses
RL: DEV (Device component use); USES (Uses)
(material for **cathode** of **nonaq.** electrolyte **secondary battery**)

RN 7440-21-3 HCAPLUS
CN Silicon (CA INDEX NAME)

Si

RN 7782-42-5 HCAPLUS
CN Graphite (CA INDEX NAME)

C

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Koksbang, R	1999			WO 9953556 A	HCAPLUS
Koksbang, R	1999			WO 9959214 A	HCAPLUS
Pynenburg, R	1995			US 5429890 A	HCAPLUS

L103 ANSWER 26 OF 36 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2001:586461 HCAPLUS
DN 135:154734
TI Apparatus for manufacture of **silicon** monoxide powder
IN **Fukuoka, Hirofumi; Ueno, Susumu;** Fukuda, Takeshi
PA **Shin-Etsu Chemical Industry Co., Ltd., Japan**
SO Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DT **Patent**
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2001220124	A	20010814	JP 2000-27838	20000204 <--
PRAI JP 2000-27838		20000204 <--		

AB The apparatus has a furnace containing a reaction chamber for generating SiO vapor, by the reaction of a SiO2 containing mixture in a container, at 1100-1600° under a reduced pressure atmospheric or in inert gas atmospheric; a heater in the furnace heating the reaction mixture; a chamber for deposition of the vapor on cooled substrates; and a pipe conducting the vapor to the deposition chamber; where the reaction chamber, the container, the heater and/or the pipe is made of graphite coated with a high m.p. metal, compound of a high m.p. metal, or SiC. The SiO is useful in packing films and for **anodes** in secondary Li **batteries.**
IC ICM C01B0033-113
ICS C23C0016-32; **H01M0004-02; H01M0004-48**
CC 49-2 (Industrial Inorganic Chemicals)
Section cross-reference(s): 47, 52
ST **silicon** monoxide powder manuf app; packing material
silicon monoxide power manuf; secondary lithium **battery**
anode silicon monoxide manuf
IT Metals, uses
RL: MOA (Modifier or additive use); USES (Uses)
(apparatus containing high m.p. metal compound and **silicon** carbide coated graphite parts for manufacture of **silicon** monoxide powder)
IT **Battery anodes**
Packaging materials
(apparatus for manufacture of **silicon** monoxide powder for secondary lithium **battery anodes** and packing materials)
IT Furnaces
(muffles; apparatus containing high m.p. metal compound and **silicon** carbide coated graphite parts for manufacture of **silicon** monoxide powder)
IT **7782-42-5**, Graphite, uses

RL: DEV (Device component use); USES (Uses)
(apparatus containing high m.p. metal compound and **silicon** carbide coated graphite parts for manufacture of **silicon** monoxide powder)

IT **113443-18-8P, Silicon** oxide (SiO)
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(apparatus containing high m.p. metal compound and **silicon** carbide coated graphite parts for manufacture of **silicon** monoxide powder)

IT 409-21-2, **Silicon** carbide, uses
RL: MOA (Modifier or additive use); USES (Uses)
(apparatus containing high m.p. metal compound and **silicon** carbide coated graphite parts for manufacture of **silicon** monoxide powder)

IT **7782-42-5**, Graphite, uses
RL: DEV (Device component use); USES (Uses)
(apparatus containing high m.p. metal compound and **silicon** carbide coated graphite parts for manufacture of **silicon** monoxide powder)

RN 7782-42-5 HCAPLUS
CN Graphite (CA INDEX NAME)

C

IT **113443-18-8P, Silicon** oxide (SiO)
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(apparatus containing high m.p. metal compound and **silicon** carbide coated graphite parts for manufacture of **silicon** monoxide powder)

RN 113443-18-8 HCAPLUS
CN Silicon oxide (SiO) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1	17778-80-2
Si	1	7440-21-3

L103 ANSWER 27 OF 36 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2001:366646 HCAPLUS
DN 134:342560
TI **Nonaqueous secondary battery** containing **silicic** material
IN Idota, Yoshio; Matsufuji, Akihiro; Mori, Nobufumi; Kase, Akira; Kagawa, Yoshikatsu; Miyamoto, Hajime
PA Fuji Photo Film Co., Ltd., Japan
SO U.S., 19 pp.
CODEN: USXXAM
DT **Patent**
LA English
FAN.CNT 3

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6235427	B1	20010522	US 1999-309309	19990511 <--
	JP 2000003727	A	20000107	JP 1998-165501	19980612 <--
	JP 2000036323	A	20000202	JP 1998-167446	19980615 <--
	JP 2000012018	A	20000114	JP 1998-171665	19980618 <--
	JP 3661417	B2	20050615		
PRAI	JP 1998-130836	A	19980513 <--		
	JP 1998-165501	A	19980612 <--		

JP 1998-167446 A 19980615 <--
JP 1998-171665 A 19980618 <--

AB A **nonaq. secondary battery** is disclosed, comprising a pos. **electrode** having a pos. **electrode** active material, a **neg. electrode** having a **neg . electrode** material, and a **nonaq.** electrolyte, wherein the pos. **electrode** active material is a transition metal oxide capable of intercalating and deintercalating **lithium**, and the **neg. electrode** material comprises at least one **silicic** material capable of intercalating and deintercalating **lithium** selected from **silicon**, a **silicon** alloy and a **silicide**, and a process for producing the **nonaq. secondary battery** is disclosed.

IC ICM **H01M0004-58**

INCL 429218100

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST **battery anode silicic** material

IT Fluoropolymers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(binder; **nonaq. secondary battery** containing **silicic** material)

IT Ceramics
(coating; **nonaq. secondary battery** containing **silicic** material)

IT Metals, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(coating; **nonaq. secondary battery** containing **silicic** material)

IT Intercalation
(electrochem.; **nonaq. secondary battery** containing **silicic** material)

IT **Secondary batteries**
(**lithium**; **nonaq. secondary battery** containing **silicic** material)

IT **Battery anodes**
(**nonaq. secondary battery** containing **silicic** material)

IT Carbon black, uses
RL: MOA (Modifier or additive use); USES (Uses)
(**nonaq. secondary battery** containing **silicic** material)

IT Plastics, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(thermoplastics, coating; **nonaq. secondary battery** containing **silicic** material)

IT **Silicon** alloy, base
RL: DEV (Device component use); USES (Uses)
(**nonaq. secondary battery** containing **silicic** material)

IT 24937-79-9, Poly(vinylidene fluoride)
RL: TEM (Technical or engineered material use); USES (Uses)
(binder; **nonaq. secondary battery** containing **silicic** material)

IT 7440-02-0, Nickel, uses 7440-22-4, Silver, uses 7440-66-6, Zinc, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(coating; **nonaq. secondary battery** containing **silicic** material)

IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 1344-28-1, Alumina, uses **7440-44-0**, Carbon, uses **7631-86-9**, **Silica**, uses 12190-79-3, Cobalt **lithium** oxide colio2

12675-05-7 14283-07-9, **Lithium** tetrafluoroborate 21324-40-3, **Lithium** hexafluorophosphate 116226-26-7 120440-46-2 145634-33-9 174180-05-3, Cobalt **lithium** oxide CoLi0-1.2O2 174180-06-4, **Lithium** nickel oxide Li0-1.2NiO2 214636-25-6 214636-26-7 253432-73-4 253432-74-5 253432-75-6 253432-76-7 296800-04-9, **Lithium** manganese oxide Li0-1.2MnO2 338459-39-5, Iron **lithium** oxide (FeLi0-1.2O2) 338459-40-8 338459-41-9 338459-42-0 338459-43-1 338459-44-2 338459-45-3 338459-46-4 338459-47-5
RL: DEV (Device component use); USES (Uses)
(**nonaq. secondary battery** containing **silicic** material)

IT 68848-64-6
RL: DEV (Device component use); FMU (Formation, unclassified); FORM (Formation, nonpreparative); USES (Uses)
(**nonaq. secondary battery** containing **silicic** material)

IT 7439-93-2, **Lithium**, uses
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(**nonaq. secondary battery** containing **silicic** material)

IT **7782-42-5**, Graphite, uses
RL: MOA (Modifier or additive use); USES (Uses)
(**nonaq. secondary battery** containing **silicic** material)

IT **7440-21-3**, **Silicon**, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(**nonaq. secondary battery** containing **silicic** material)

IT **7440-44-0**, Carbon, uses **7631-86-9**, **Silica**, uses
RL: DEV (Device component use); USES (Uses)
(**nonaq. secondary battery** containing **silicic** material)

RN 7440-44-0 HCAPLUS
CN Carbon (CA INDEX NAME)

C

RN 7631-86-9 HCAPLUS
CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O=Si=O

IT **7782-42-5**, Graphite, uses
RL: MOA (Modifier or additive use); USES (Uses)
(**nonaq. secondary battery** containing **silicic** material)

RN 7782-42-5 HCAPLUS
CN Graphite (CA INDEX NAME)

C

IT **7440-21-3, Silicon**, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(**nonaq. secondary battery** containing **silicic** material)
RN 7440-21-3 HCAPLUS
CN Silicon (CA INDEX NAME)

Si

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Furukawa	1989			US 4820599	HCAPLUS
Miyasaka	1999			US 5869208	HCAPLUS
Sasaki	1996			US 5556721	HCAPLUS
Wilson	1997			US 5624606	HCAPLUS

L103 ANSWER 28 OF 36 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2001:114891 HCAPLUS
DN 134:134156
TI **Nonaqueous** electrolyte **secondary battery**
IN Kohno, Tatsuoki; Takami, Norio; Inagaki, Hiroki; Morita, Tomokazu; Takeno, Shirou
PA Kabushiki Kaisha Toshiba, Japan
SO Eur. Pat. Appl., 25 pp.
CODEN: EPXXDW
DT **Patent**
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1076373	A2	20010214	EP 2000-306779	20000809 <--
	EP 1076373	A3	20020703		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	JP 2001052691	A	20010223	JP 1999-225489	19990809 <--
	JP 2001185150	A	20010706	JP 1999-374989	19991228 <--
	US 6495291	B1	20021217	US 2000-634641	20000808 <--
PRAI	JP 1999-225489	A	19990809 <--		
	JP 1999-374989	A	19991228 <--		

AB A **nonaq**. electrolyte **secondary battery** comprises a **nonaq**. electrolyte, a pos. **electrode**, and a **neg. electrode** containing a **neg. electrode** active material, wherein the **neg. electrode** active material contains a composite material having a microstructure containing a carbon-containing phase and a crystal phase having an average size falling within a range of between 0.01 μm and 10 μm.
IC ICM **H01M0010-40**
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **battery secondary nonaq** electrolyte
IT Fluoropolymers, uses
RL: MOA (Modifier or additive use); USES (Uses)
(binder; **nonaq**. electrolyte **secondary battery**)
IT **Battery anodes**
Battery electrolytes

Secondary batteries
(**nonaq.** electrolyte **secondary battery**)
IT Carbon black, uses
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(**nonaq.** electrolyte **secondary battery**)
IT 24937-79-9, Pvdf
RL: MOA (Modifier or additive use); USES (Uses)
(binder; **nonaq.** electrolyte **secondary battery**)
IT 7440-50-8, Copper, uses
RL: DEV (Device component use); USES (Uses)
(current collector; **nonaq.** electrolyte **secondary battery**)
IT 96-49-1, Ethylene carbonate 623-53-0, Ethyl methyl carbonate 7429-90-5, Aluminum, uses 7439-91-0, Lanthanum, uses 7439-92-1, Lead, uses 7439-95-4, Magnesium, uses 7439-98-7, Molybdenum, uses 7440-00-8, Neodymium, uses 7440-03-1, Niobium, uses **7440-21-3**, **Silicon**, uses 7440-24-6, Strontium, uses 7440-25-7, Tantalum, uses 7440-31-5, Tin, uses 7440-32-6, Titanium, uses 7440-33-7, Tungsten, uses 7440-36-0, Antimony, uses 7440-39-3, Barium, uses 7440-42-8, Boron, uses **7440-44-0**, Carbon, uses 7440-45-1, Cerium, uses 7440-47-3, Chromium, uses 7440-55-3, Gallium, uses 7440-56-4, Germanium, uses 7440-62-2, Vanadium, uses 7440-66-6, Zinc, uses 7440-67-7, Zirconium, uses 7440-70-2, Calcium, uses 7440-74-6, Indium, uses 9002-88-4, Polyethylene 12190-79-3, Cobalt **lithium** oxide colio2 21324-40-3, **Lithium** hexafluorophosphate
RL: DEV (Device component use); USES (Uses)
(**nonaq.** electrolyte **secondary battery**)
IT **7782-42-5**, Graphite, uses
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(**nonaq.** electrolyte **secondary battery**)
IT 872-50-4, n-Methylpyrrolidone, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(**nonaq.** electrolyte **secondary battery**)
IT **7440-21-3**, **Silicon**, uses **7440-44-0**, Carbon, uses
RL: DEV (Device component use); USES (Uses)
(**nonaq.** electrolyte **secondary battery**)
RN 7440-21-3 HCAPLUS
CN Silicon (CA INDEX NAME)

Si

RN 7440-44-0 HCAPLUS
CN Carbon (CA INDEX NAME)

C

IT **7782-42-5**, Graphite, uses
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(**nonaq.** electrolyte **secondary battery**)
RN 7782-42-5 HCAPLUS

CN Graphite (CA INDEX NAME)

C

L103 ANSWER 29 OF 36 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2000:757024 HCAPLUS
DN 133:337711
TI **Nonaqueous** electrolyte **secondary** cell
IN Shimamura, Harunari; Nitta, Yoshiaki
PA Matsushita Electric Industrial Co., Ltd., Japan
SO PCT Int. Appl., 29 pp.
CODEN: PIXXD2
DT **Patent**
LA Japanese
FAN.CNT 7

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2000063986	A1	20001026	WO 2000-JP2502	20000418 <--
	W: US				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	JP 2001006677	A	20010112	JP 2000-114799	20000417 <--
	JP 2001006667	A	20010112	JP 2000-114800	20000417 <--
	EP 1109239	A1	20010620	EP 2000-917330	20000418 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
	US 6653019	B1	20031125	US 2001-719532	20010228 <--
PRAI	JP 1999-112073	A	19990420 <--		
	JP 1999-112074	A	19990420 <--		
	US 1998-90484	A2	19980603 <--		
	WO 2000-JP2502	W	20000418 <--		

AB A **nonaq**. electrolyte **secondary** cell comprises a **neg**. **electrode** which comprises, as its main material, composite particles having nuclear particles comprising at least one constituent element selected from tin, **silicon** and zinc and, covering at least a part of the circumference thereof, a solid solution or an intermetallic compound of the constituent element with at least one element selected from the group consisting of 2 Group elements exclusive of the constituent elements of nuclear particles, transition elements, Group 12 elements, Group 13 elements and Group14 elements exclusive of carbon of the Periodic Table, and in that the **lithium occluded** in the composite particles has a NMR signal in the range of -10 to 40 ppm and also at least one other signal in the range of -10 to 4 ppm. The **nonaq**. electrolyte **secondary** cell has higher energy d. and improved in life characteristics in charge-discharge cycle, as compared to a conventional cell using a carbon material for a **neg** . **electrode**.

IC ICM **H01M0004-38**
ICS **H01M0004-02; H01M0010-40**
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **nonaq** electrolyte **secondary** cell
IT **Secondary batteries**
(**nonaq**. electrolyte; **nonaq**. electrolyte **secondary** cell)
IT Fluoropolymers, uses
RL: DEV (Device component use); USES (Uses)
(pos. **electrode** in **nonaq**. electrolyte

secondary cell containing)
IT 1313-08-2 **7440-21-3, Silicon**, uses 7440-31-5, Tin, uses 7440-66-6, Zinc, uses 11099-22-2 11109-57-2 11110-87-5 11124-13-3 11125-88-5 11143-56-9 11149-84-1 12017-12-8, Cobalt **silicide** CoSi2 12023-01-7 12057-70-4 12201-89-7, Nickel **silicide** NiSi2 22831-39-6, Magnesium **silicide** Mg2Si 37230-21-0 51844-78-1 74946-92-2 96755-45-2 144692-49-9 303985-97-9
RL: DEV (Device component use); USES (Uses)
(**neg. electrode** in **nonaq**. electrolyte **secondary** cell containing)
IT **7440-44-0**, Carbon, uses 12190-79-3, **Lithium** cobalt oxide LiCoO2 24937-79-9, PVDF
RL: DEV (Device component use); USES (Uses)
(pos. **electrode** in **nonaq**. electrolyte **secondary** cell containing)
IT **7440-21-3, Silicon**, uses
RL: DEV (Device component use); USES (Uses)
(**neg. electrode** in **nonaq**. electrolyte **secondary** cell containing)
RN 7440-21-3 HCAPLUS
CN Silicon (CA INDEX NAME)

Si

IT **7440-44-0**, Carbon, uses
RL: DEV (Device component use); USES (Uses)
(pos. **electrode** in **nonaq**. electrolyte **secondary** cell containing)
RN 7440-44-0 HCAPLUS
CN Carbon (CA INDEX NAME)

C

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Hitachi Ltd				US 6030726 A	HCAPLUS
Hitachi Ltd				KR 98086348 A	
Hitachi Ltd	1998			JP 10208741 A	HCAPLUS
Hitachi Ltd	1998			JP 10321225 A	HCAPLUS
Kao Corporation	1999			JP 11297311 A	HCAPLUS
Matsushita Electric Ind				JP 200030703 A	
Matsushita Electric Ind	1998			EP 0883199 A	HCAPLUS
Tokuyama Corp	1998			JP 10316426 A	HCAPLUS

L103 ANSWER 30 OF 36 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2000:747116 HCAPLUS
DN **133:337675**
TI **Nonaqueous** electrolyte electric **battery**
IN Yamada, Shinichiro; Endo, Takuya; Imoto, Hiroshi; Horie, Takeshi; Noda, Kazuhiro; Kezuka, Koichiro
PA Sony Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF

DT **Patent**
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000299108	A	20001024	JP 1999-107157	19990414 <--
PRAI	JP 1999-107157		19990414 <--		

AB The **nonaq**. electrolyte **battery** comprises a **Li** -containing pos. **electrode**, a **neg**. **electrode** containing a blend of **silicon** compound and carbon material which has **lithium**-doped and undoped ability and is dispersed in a binder, and **non-aqueous** electrolyte which lies between the pos. **electrode** and **neg**. **electrode**, and the binder has a glass transition temperature below -40°. The **silicon** compound has a general formula MxSi where M is any elements except **Li** and Si and x≥0.01, and the Rsi/Rc is ≤1 where Rsi and Rc is the average particle diameter of **silicon** compound and carbon material, resp. Cycle quality of the **battery** is improved and the volume change during doping-undoping of **lithium** is prohibited.

IC ICM **H01M0004-62**
ICS **H01M0004-02; H01M0004-04; H01M0004-58; H01M0010-40**
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **nonaq** electrolyte elec **battery silicon** carbon binder
IT Binders
(**nonaq**. electrolyte elec. **battery** having binder containing **silicon** compound and carbon material)
IT **Primary batteries**
Secondary batteries
(**nonaq**. electrolyte; **nonaq**. electrolyte elec. **battery** having binder containing **silicon** compound and carbon material)
IT Polypropene fibers, uses
RL: DEV (Device component use); USES (Uses)
(separator; **nonaq**. electrolyte elec. **battery** having binder containing **silicon** compound and carbon material)
IT 22831-39-6, Magnesium **silicide** Mg2Si
RL: DEV (Device component use); USES (Uses)
(**nonaq**. electrolyte elec. **battery** having binder containing)
IT **7782-42-5**, Graphite, uses
RL: DEV (Device component use); USES (Uses)
(pitch; **nonaq**. electrolyte elec. **battery** having binder containing **silicon** compound and carbon material)
IT **7782-42-5**, Graphite, uses
RL: DEV (Device component use); USES (Uses)
(pitch; **nonaq**. electrolyte elec. **battery** having binder containing **silicon** compound and carbon material)
RN 7782-42-5 HCAPLUS
CN Graphite (CA INDEX NAME)

C

L103 ANSWER 31 OF 36 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2000:686425 HCAPLUS
DN 133:240636

TI **Nonaqueous** electrolyte **battery**
IN Tomita, Takashi; Ojima, Hideaki; Ishino, Kinichi; Kondo, Takayuki
PA Sony Corporation, Japan
SO Eur. Pat. Appl., 11 pp.
CODEN: EPXXDW
DT **Patent**
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1039567	A1	20000927	EP 2000-106324	20000323 <--
	EP 1039567	B1	20031119		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	JP 2000277157	A	20001006	JP 1999-82375	19990325 <--
	US 6517973	B1	20030211	US 2000-532795	20000322 <--
PRAI	JP 1999-82375	A	19990325 <--		

AB A **nonaq.** electrolyte **battery** having improved low temperature characteristics and preservation characteristics includes a **neg. electrode** containing a carbon material as a **neg. electrode** active material, a pos. **electrode** containing a pos. **electrode** active material and which is arranged facing the **neg. electrode** and a **nonaq.** electrolyte arranged between the **neg.** and pos. **electrodes.** The **neg. electrode** contains a material not doped with **lithium** and/or not **releasing lithium** in an amount of not less than 20 wt% and not larger than 40 wt% based on the **neg. electrode** active material.

IC ICM **H01M0004-02**
ICS **H01M0004-62; H01M0004-58; H01M0010-40**
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **lithium battery nonaq** electrolyte
IT Carboxylic acids, uses
RL: DEV (Device component use); USES (Uses)
(esters; **nonaq.** electrolyte **battery** with improved low-temperature characteristics)
IT **Battery anodes**
Battery electrolytes
Primary batteries
(**nonaq.** electrolyte **battery** with improved low-temperature characteristics)
IT Carbonaceous materials (technological products)
Ethers, uses
RL: DEV (Device component use); USES (Uses)
(**nonaq.** electrolyte **battery** with improved low-temperature characteristics)
IT Rare earth oxides
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(**nonaq.** electrolyte **battery** with improved low-temperature characteristics)
IT Fluoropolymers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(**nonaq.** electrolyte **battery** with improved low-temperature characteristics)
IT Petroleum pitch
(precursor; **nonaq.** electrolyte **battery** with improved low-temperature characteristics)
IT 463-79-6D, Carbonic acid, esters, uses
RL: DEV (Device component use); USES (Uses)

(cyclic and chain; **nonaq.** electrolyte **battery** with improved low-temperature characteristics)

IT 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 616-38-6, Dimethyl carbonate **7782-42-5**, Graphite, uses 7791-03-9, **Lithium** perchlorate 14024-11-4, **Lithium** tetrachloroaluminate 14283-07-9, **Lithium** tetrafluoroborate 17347-95-4, **Lithium hexafluorosilicate** 21324-40-3, **Lithium** hexafluorophosphate 29935-35-1, **Lithium** hexafluoroarsenate 33454-82-9, **Lithium** triflate 90076-65-6 132404-42-3
RL: DEV (Device component use); USES (Uses)
(**nonaq.** electrolyte **battery** with improved low-temperature characteristics)

IT 1305-78-8, Calcia, uses 1309-48-4, Magnesia, uses 1314-11-0, Strontia, uses 1314-23-4, Zirconium oxide, uses 1314-36-9, Yttria, uses 1344-28-1, Alumina, uses 1345-13-7, Cerium oxide ce2o3 **7631-86-9**, **Silica**, uses **10034-77-2**, Calcium **silicate** ca2sio4 **12141-46-7**, Aluminum **silicate** al2sio5
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(**nonaq.** electrolyte **battery** with improved low-temperature characteristics)

IT 12190-79-3P, Cobalt **lithium** oxide colio2
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(**nonaq.** electrolyte **battery** with improved low-temperature characteristics)

IT 24937-79-9, Pvdf
RL: TEM (Technical or engineered material use); USES (Uses)
(**nonaq.** electrolyte **battery** with improved low-temperature characteristics)

IT **7782-42-5**, Graphite, uses
RL: DEV (Device component use); USES (Uses)
(**nonaq.** electrolyte **battery** with improved low-temperature characteristics)

RN 7782-42-5 HCAPLUS
CN Graphite (CA INDEX NAME)

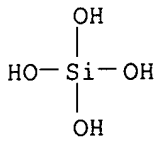
C

IT **7631-86-9**, **Silica**, uses **10034-77-2**, Calcium **silicate** ca2sio4 **12141-46-7**, Aluminum **silicate** al2sio5
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(**nonaq.** electrolyte **battery** with improved low-temperature characteristics)

RN 7631-86-9 HCAPLUS
CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O=Si=O

RN 10034-77-2 HCAPLUS
CN Silicic acid (H4SiO4), calcium salt (1:2) (CA INDEX NAME)



●2 Ca

RN 12141-46-7 HCAPLUS
CN Aluminum oxide silicate (Al2O(SiO4)) (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Anon	1998	1998		PATENT ABSTRACTS OF	
Hitachi, M	1998			EP 0845825 A	HCAPLUS
Sanyo Electric Co Ltd	1998			JP 10188957 A	HCAPLUS
Sony Corp	1995			JP 07111161 A	HCAPLUS

L103 ANSWER 32 OF 36 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2000:608507 HCAPLUS
DN 133:196015
TI **Anode**-active material used in **lithium secondary battery**
IN Kaneda, Junya; Takeuchi, Seiji; Watanabe, Noriyuki; Yamaki, Takahiro; Muranaka, Yasushi; Aono, Yasuhisa
PA Hitachi, Ltd., Japan
SO Eur. Pat. Appl., 32 pp.
CODEN: EPXXDW
DT **Patent**
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1032062	A1	20000830	EP 2000-102256	20000215 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	JP 2000243396	A	20000908	JP 1999-44119	19990223 <--
	US 2003129494	A1	20030710	US 2000-505203	20000216 <--
	US 6638662	B2	20031028		
	KR 2000058145	A	20000925	KR 2000-8567	20000222 <--
PRAI	JP 1999-44119	A	19990223 <--		

AB A **lithium secondary battery** comprising a pos. **electrode**, a **neg. electrode** containing a **lithium** ion-storable/dischargeable **neg. electrode**-active material and a **lithium** ion conductive, **nonaq.** electrolytic solution or polymer electrolyte, is characterized in that the **neg. electrode**-active material comprises particles of carbonaceous material and particles of metal and metal oxide capable of enhancing **lithium** ion interstitial diffusibility/**releasability** as embedded in the particles of carbonaceous material. The particles of carbonaceous materials and **lithium** ion interstitially diffusible/**releasable** particles are prepared by carbonization of a mixture thereof with MA or carbon precursor. The **battery** has a high capacity and a long cycle life, and can be used

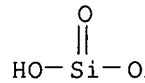
in various elec. appliances.
IC ICM **H01M0004-58**
ICS **H01M0010-40**; C01G0031-00
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **lithium battery anode** active material
IT **Battery anodes**
Carbonization
Petroleum pitch
(**anode**-active material used in **lithium secondary battery**)
IT Carbon fibers, uses
Carbonaceous materials (technological products)
RL: DEV (Device component use); USES (Uses)
(**anode**-active material used in **lithium secondary battery**)
IT Fluoropolymers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(**anode**-active material used in **lithium secondary battery**)
IT **Secondary batteries**
(**lithium**; **anode**-active material used in **lithium secondary battery**)
IT 96-49-1, Ethylene carbonate 616-38-6, Dimethyl carbonate 7429-90-5, Aluminum, uses **7440-21-3**, **Silicon**, uses 7440-56-4, Germanium, uses **7782-42-5**, Graphite, uses 12057-17-9, **Lithium** manganese oxide limn2o4 12190-79-3, Cobalt **lithium** oxide colio2 **15773-66-7**, Tin **silicate** snsio3 18282-10-5, Tin dioxide 21324-40-3, **Lithium** hexafluorophosphate 113066-89-0, Cobalt **lithium** nickel oxide Co0.2LiNi0.8O2 **113443-18-8**, **Silicon** oxide (SiO) 178404-39-2, **Lithium** manganese oxide Li1.09Mn1.91O4
RL: DEV (Device component use); USES (Uses)
(**anode**-active material used in **lithium secondary battery**)
IT 24937-79-9, Pvdf
RL: TEM (Technical or engineered material use); USES (Uses)
(**anode**-active material used in **lithium secondary battery**)
IT 7440-50-8, Copper, uses
RL: DEV (Device component use); USES (Uses)
(current collector; **anode**-active material used in **lithium secondary battery**)
IT **7440-21-3**, **Silicon**, uses **7782-42-5**, Graphite, uses **15773-66-7**, Tin **silicate** snsio3 **113443-18-8**, **Silicon** oxide (SiO)
RL: DEV (Device component use); USES (Uses)
(**anode**-active material used in **lithium secondary battery**)
RN 7440-21-3 HCAPLUS
CN Silicon (CA INDEX NAME)

Si

RN 7782-42-5 HCAPLUS
CN Graphite (CA INDEX NAME)

C

RN 15773-66-7 HCAPLUS
CN Silicic acid (H2SiO3), tin(2+) salt (1:1) (8CI, 9CI) (CA INDEX NAME)



● Sn(II)

RN 113443-18-8 HCAPLUS
CN Silicon oxide (SiO) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1	17778-80-2
Si	1	7440-21-3

L103 ANSWER 33 OF 36 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2000:493254 HCAPLUS
DN 133:107408
TI Process for producing **lithium secondary battery**
IN Kaneda, Junya; Watanabe, Noriyuki; Aono, Yasuhisa; Takeuchi, Seiji; Muranaka, Yasushi; Takei, Kouichi
PA Hitachi, Ltd., Japan; Hitachi Chemical Company, Ltd.
SO Eur. Pat. Appl., 25 pp.
CODEN: EPXXDW
DT **Patent**
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1020944	A2	20000719	EP 2000-100127	20000107 <--
	EP 1020944	A3	20031217		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	US 6524749	B1	20030225	US 2000-482644	20000113 <--
	KR 2000053488	A	20000825	KR 2000-1634	20000114 <--
	JP 2000268824	A	20000929	JP 2000-10222	20000114 <--
	US 2003091901	A1	20030515	US 2002-331648	20021231 <--
PRAI	JP 1999-7380	A	19990114 <--		
	US 2000-482644	A3	20000113 <--		

AB A **lithium secondary battery**, which comprises a pos. **electrode**, a **neg. electrode** containing a **lithium** ion-storable/dischargeable **neg. electrode**-active material and a **lithium** ion conductive, **nonaq.** electrolytic solution or polymer electrolyte can have distinguished charging/discharging characteristics and a higher safety, when the **neg. electrode** material contains particles comprising carbonaceous materials and at least one of elements capable of

forming a compound with **Li**; the elements have a m.p. of at least 900° and a thermal expansion coefficient of not more than 9 ppm/K at room temperature; the particles are embedded in a plurality of layers of the carbonaceous materials; the particles being subjected to a mech. treatment to make particle sizes of the particles smaller than the initial particle size in advance.

IC ICM **H01M0010-40**
ICS **H01M0004-02**; **H01M0004-58**

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST **lithium battery** fabrication; safety **lithium battery**

IT **Secondary batteries**
(**lithium**; process for producing **lithium secondary battery**)

IT **Battery anodes**
Coal tar pitch
Petroleum pitch
(process for producing **lithium secondary battery**)

IT Carbonaceous materials (technological products)
RL: DEV (Device component use); USES (Uses)
(process for producing **lithium secondary battery**)

IT Fluoropolymers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(process for producing **lithium secondary battery**)

IT 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate 7429-90-5, Aluminum, uses **7440-44-0**, Carbon, uses **7782-42-5**, Graphite, uses 12057-17-9, **Lithium** manganese oxide limn2o4 12190-79-3, Cobalt **lithium** oxide colio2 14283-07-9, **Lithium** tetrafluoroborate 21324-40-3, **Lithium** hexafluorophosphate 99637-69-1, **Lithium** nickel oxide lini2o4
RL: DEV (Device component use); USES (Uses)
(process for producing **lithium secondary battery**)

IT **7440-21-3**, **Silicon**, uses 7440-56-4, Germanium, uses
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(process for producing **lithium secondary battery**)

IT 7440-50-8, Copper, uses 24937-79-9, Pvdf
RL: TEM (Technical or engineered material use); USES (Uses)
(process for producing **lithium secondary battery**)

IT **7440-44-0**, Carbon, uses **7782-42-5**, Graphite, uses
RL: DEV (Device component use); USES (Uses)
(process for producing **lithium secondary battery**)

RN 7440-44-0 HCAPLUS
CN Carbon (CA INDEX NAME)

C

RN 7782-42-5 HCAPLUS
CN Graphite (CA INDEX NAME)

C

IT **7440-21-3, Silicon**, uses
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(process for producing **lithium secondary battery**)
RN 7440-21-3 HCAPLUS
CN Silicon (CA INDEX NAME)

Si

L103 ANSWER 34 OF 36 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2000:442057 HCAPLUS
DN **133:46205**
TI Materials with intermetallic host structure as **anodes** for rechargeable **lithium batteries**
IN Thackeray, Michael M.; Kepler, Keith D.; Vaughey, John T.
PA The University of Chicago, USA
SO PCT Int. Appl., 57 pp.
CODEN: PIXXD2
DT **Patent**
LA English
FAN.CNT 2

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2000038257	A1	20000629	WO 1999-US18811	19990817 <--
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US				
RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
WO 2000003443	A1	20000120	WO 1999-US12868	19990608 <--
W: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
RW: AL, AM, AT, AU, AZ, BA, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW				
AU 9955709	A1	20000712	AU 1999-55709	19990817 <--
CA 2321130	A1	20000629	CA 1999-2321130	19991015 <--
WO 2000038258	A1	20000629	WO 1999-US24168	19991015 <--
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA				
RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF,				

CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

	AU 2000011180	A	20000712	AU 2000-11180	19991015 <--
	US 6528208	B1	20030304	US 2000-622617	20001026 <--
PRAI	US 1998-142312P	P	19981221 <--		
	WO 1999-US12868	W	19990608 <--		
	US 1998-92206P	P	19980709 <--		
	WO 1999-US18811	W	19990817 <--		
	WO 1999-US24168	W	19991015 <--		

AB A **neg. electrode** for a **nonaq.** electrochem. cell comprising a novel electrochem. active material is disclosed. The novel material has an intermetallic host structure containing two or more elements selected from metals and **silicon** and is capable of accommodating **lithium** within the host structure such that when lithiated, the host structure transforms to a lithiated zinc-blend type structure. Both **electrode** intermetallic host structures containing addnl. active elements (which alloy with **lithium**) and inactive elements (which are non-alloying with **lithium**) are disclosed. Electrochem. cells and **batteries** as well as methods of making the **neg. electrode** are disclosed.

IC **H01M0004-58**

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 56

ST **lithium battery anode** intermetallic material

IT **Secondary batteries**
(**lithium**; materials with intermetallic host structure as **anodes** for rechargeable **lithium batteries**)

IT **Battery anodes**
(materials with intermetallic host structure as **anodes** for rechargeable **lithium batteries**)

IT Intermetallic compounds
RL: DEV (Device component use); USES (Uses)
(materials with intermetallic host structure as **anodes** for rechargeable **lithium batteries**)

IT 1312-41-0 **7440-44-0**, Carbon, uses **7782-42-5**, Graphite, uses 12019-61-3 12019-69-1 12041-04-2 12053-93-9 12054-11-4, CuSn 12059-24-4 12629-48-0 146296-28-8, **Lithium** magnesium **silicide** Li2MgSi
RL: DEV (Device component use); USES (Uses)
(materials with intermetallic host structure as **anodes** for rechargeable **lithium batteries**)

IT 7439-93-2, **Lithium**, uses
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(materials with intermetallic host structure as **anodes** for rechargeable **lithium batteries**)

IT **7440-44-0**, Carbon, uses **7782-42-5**, Graphite, uses
RL: DEV (Device component use); USES (Uses)
(materials with intermetallic host structure as **anodes** for rechargeable **lithium batteries**)

RN 7440-44-0 HCAPLUS
CN Carbon (CA INDEX NAME)

C

RN 7782-42-5 HCAPLUS
CN Graphite (CA INDEX NAME)

C

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Huang	1994			US 5294503 A	HCAPLUS
Nitta	1999			JP 11040155 A	HCAPLUS
Saito	1998			US 5770333 A	HCAPLUS
Tarcy	1990			US 4950560 A	HCAPLUS
Thackeray	1999	1	111	Intermetallic insert	HCAPLUS

L103 ANSWER 35 OF 36 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1999:518822 HCAPLUS
DN 131:159381
TI Apparatus and method of heat treatment of **silicon** powder
IN **Fukuoka, Hirofumi**; Watanabe, Masaki; Konya, Yoshiji
PA **Shin-Etsu Chemical Industry Co., Ltd., Japan**
SO Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DT **Patent**
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 11222656	A	19990817	JP 1998-34190	19980130 <--
PRAI	JP 1998-34190		19980130 <--		

AB The heat treatment apparatus is a furnace containing a setter for placing Si powder, an **electrode**, and an elec. heater, whereas the setter, the **electrode**, and/or the heater is made of graphite coated with SiC film. Si powder is heat treated in a nonoxidizing atmospheric containing N2 or NH3 at 1100-1410° in the furnace for nitriding. Si powder is heat treated in the furnace at 1100-1410° and 1-30 Torr for deoxygenation. The SiC coating prevents undesired reaction of the graphite with SiO(g) which is a reaction product of Si powder and SiO2 film formed on the surface of the Si powder, so that the service life of the furnace is prolonged.
IC ICM C22F0001-16
ICS C01B0033-02; B22F0001-00; C22F0001-00
CC 49-1 (Industrial Inorganic Chemicals)
ST **silicon** powder heat treatment furnace graphite; nitriding **silicon** powder heating furnace graphite; deoxygenation **silicon** powder heating furnace graphite; carbide **silicon** coating graphite furnace
IT Furnaces
(heat-treatment; (thermochem.) heat treatment of **silicon** powder and heat treatment furnace containing SiC-coated graphite members therefor)
IT Deoxidation
Nitriding
(**silicon** powder; (thermochem.) heat treatment of **silicon** powder and heat treatment furnace containing SiC-coated graphite members therefor)
IT **7782-42-5**, Graphite, uses
RL: DEV (Device component use); USES (Uses)
((thermochem.) heat treatment of **silicon** powder and heat treatment furnace containing SiC-coated graphite members therefor)
IT 409-21-2, **Silicon** carbide (sic), uses

RL: DEV (Device component use); USES (Uses)
(coatings; (thermochem.) heat treatment of **silicon** powder and heat treatment furnace containing SiC-coated graphite members therefor)

IT **7440-21-3, Silicon**, reactions
RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(powder; (thermochem.) heat treatment of **silicon** powder and heat treatment furnace containing SiC-coated graphite members therefor)

IT 7664-41-7, Ammonia, uses 7727-37-9, Nitrogen, uses
RL: NUU (Other use, unclassified); USES (Uses)
(**silicon** powder-nitriding gas; (thermochem.) heat treatment of **silicon** powder and heat treatment furnace containing SiC-coated graphite members therefor)

IT **7782-42-5**, Graphite, uses
RL: DEV (Device component use); USES (Uses)
((thermochem.) heat treatment of **silicon** powder and heat treatment furnace containing SiC-coated graphite members therefor)

RN 7782-42-5 HCAPLUS
CN Graphite (CA INDEX NAME)

C

IT **7440-21-3, Silicon**, reactions
RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(powder; (thermochem.) heat treatment of **silicon** powder and heat treatment furnace containing SiC-coated graphite members therefor)

RN 7440-21-3 HCAPLUS
CN Silicon (CA INDEX NAME)

Si

L103 ANSWER 36 OF 36 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1997:390285 HCAPLUS
DN 127:37180
TI **Nonaqueous** electrolyte **secondary batteries** with low internal resistance and prolonged cycle life
IN Iwasaki, Fumiharu; Tawara, Kensuke; Sakata, Akifumi; Yahagi, Seiji; Sakai, Tsugio
PA Seiko Instruments, Inc., Japan
SO Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DT **Patent**
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 09097625	A	19970408	JP 1995-254139	19950929 <--
PRAI JP 1995-254139		19950929 <--		

AB The **batteries** consist of **electrodes** (pos. and **neg.**) capable of absorbing and **releasing Li+** ions, a **nonaq.** electrolyte solution having **Li+** conductivity, and carbonaceous filler between a collector and pos. and/or **neg.** active material. The elec. conducting filler consists of graphite and/or C black and a binder (acrylic polymer for pos. **electrode** side,

phenolic resin or epoxy resin for **neg. electrode** side). The collector is al, Al alloy, Ti, stainless steel for pos. **electrode**, and Cu or Cu alloy for **neg. electrode** . The **nonaq.** electrolyte is alkyl carbonate type selected from propylene carbonate and ethylene carbonate.

IC ICM **H01M0010-40**
ICS **H01M0010-40; H01M0004-02; H01M0004-04; H01M0004-62; H01M0004-66**

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST **nonaq** electrolyte **lithium secondary battery**

IT Acrylic polymers, uses
Epoxy resins, uses
Fluoropolymers, uses
Phenolic resins, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(binder; **nonaq.** electrolyte **secondary batteries** with low internal resistance and prolonged cycle life)

IT **Secondary batteries**
(**lithium; nonaq.** electrolyte **secondary batteries** with low internal resistance and prolonged cycle life)

IT 24937-79-9, Polyfluorovinylidene
RL: TEM (Technical or engineered material use); USES (Uses)
(binder; **nonaq.** electrolyte **secondary batteries** with low internal resistance and prolonged cycle life)

IT 7429-90-5, Aluminum, uses 7440-32-6, Titanium, uses 7440-50-8, Copper, uses 12597-68-1, Stainless steel, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(collector; **nonaq.** electrolyte **secondary batteries** with low internal resistance and prolonged cycle life)

IT **113443-18-8, Silicon** monoxide
RL: TEM (Technical or engineered material use); USES (Uses)
(neg. active material; **nonaq.** electrolyte **secondary batteries** with low internal resistance and prolonged cycle life)

IT **7782-42-5**, Graphite, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(**nonaq.** electrolyte **secondary batteries** with low internal resistance and prolonged cycle life)

IT 173045-11-9, Cobalt **lithium** borate oxide (Co0.97Li(BO3)0.03O1.91)
RL: TEM (Technical or engineered material use); USES (Uses)
(pos. active material; **nonaq.** electrolyte **secondary batteries** with low internal resistance and prolonged cycle life)

IT **113443-18-8, Silicon** monoxide
RL: TEM (Technical or engineered material use); USES (Uses)
(neg. active material; **nonaq.** electrolyte **secondary batteries** with low internal resistance and prolonged cycle life)

RN 113443-18-8 HCAPLUS
CN Silicon oxide (SiO). (CA INDEX NAME)

Component	Ratio	Component Registry Number

O	1	17778-80-2
Si	1	7440-21-3

IT **7782-42-5**, Graphite, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(**nonaq.** electrolyte **secondary batteries**
with low internal resistance and prolonged cycle life)
RN 7782-42-5 HCAPLUS
CN Graphite (CA INDEX NAME)

C

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http://www.cas.org/ONLINE/UG/regprops.html

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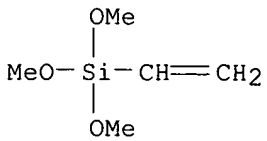
L28 ANSWER 1 OF 3 REGISTRY COPYRIGHT 2007 ACS on STN
RN **2768-02-7** REGISTRY
ED Entered STN: 16 Nov 1984
CN Silane, ethenyltrimethoxy- (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN Silane, trimethoxyvinyl- (6CI, 7CI, 8CI)
OTHER NAMES:
CN (Trimethoxysilyl)ethene
CN A 171
CN A 171 (silane derivative)
CN CV 4917
CN Dynasylan Silfin
CN Dynasylan VTMO
CN Ethenyltrimethoxysilane
CN Geniosil XL 10
CN KBM 1003

CN KH 921
CN LS 815
CN NUC-Y 9818
CN S 210
CN SB 6301
CN SH 6300
CN Sigma T 5051
CN Sila-Ace S 210
CN Silfin 6
CN Silox VS 911
CN Silquest A 171
CN SL 815
CN SZ 6300
CN Trimethoxyvinylsilane
CN TSL 8310
CN U 611
CN V 4917
CN Vinyltrimethoxysilane
CN VTMO
CN VTS-M
CN XL 10
CN XL 10 (silane)
CN Y 4302
CN Z 6300
DR 119684-24-1
MF C5 H12 O3 Si
CI COM
LC STN Files: BEILSTEIN*, BIOSIS, CA, CAOLD, CAPLUS, CASREACT, CHEMCATS, CHEMINFORMRX, CHEMLIST, CHEMSAFE, CSCHEM, CSNB, GMELIN*, IFICDB, IFIPAT, IFIUDB, MSDS-OHS, PIRA, PROMT, RTECS*, SPECINFO, TOXCENTER, USPAT2, USPATFULL, VTB
(*File contains numerically searchable property data)
Other Sources: DSL**, EINECS**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

2770 REFERENCES IN FILE CA (1907 TO DATE)
609 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
2779 REFERENCES IN FILE CAPLUS (1907 TO DATE)
19 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

REFERENCE 1: 146:217155

REFERENCE 2: 146:216309

REFERENCE 3: 146:210331

REFERENCE 4: 146:208084

REFERENCE 5: 146:187499

REFERENCE 6: 146:187471

REFERENCE 7: 146:186048

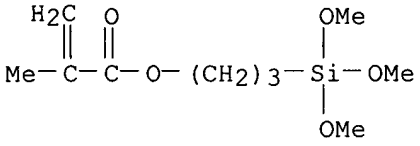
REFERENCE 8: 146:185771

REFERENCE 9: 146:185612

REFERENCE 10: 146:185367

L28 ANSWER 2 OF 3 REGISTRY COPYRIGHT 2007 ACS on STN
RN **2530-85-0** REGISTRY
ED Entered STN: 16 Nov 1984
CN 2-Propenoic acid, 2-methyl-, 3-(trimethoxysilyl)propyl ester (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN 1-Propanol, 3-(trimethoxysilyl)-, methacrylate (8CI)
CN Methacrylic acid, 3-(trimethoxysilyl)propyl ester (8CI)
OTHER NAMES:
CN (γ-Methacryloxypropyl)trimethoxysilane
CN (3-Methacryloxypropyl)trimethoxysilane
CN 2-Methyl-2-propenoic acid 3-(trimethoxysilyl)propyl ester
CN 3-(Trimethoxysilyl)propyl methacrylate
CN 3-Methacryloyloxypropyltrimethoxysilane
CN A 174
CN A 174 (coupling agent)
CN AZ 6167
CN Dynasylan MEMO
CN Dynasylan MEMO-E
CN GF 31
CN JH 70
CN KBM 503
CN KBM 503P
CN KH 570
CN KH 70
CN LS 3380
CN M 8550
CN M 8550KG
CN MEMO
CN MOPS-M
CN MPS
CN NSC 93591
CN NUCA 174
CN Prosil 248
CN Q 174
CN S 710
CN SH 6030
CN Sila-Ace S 710
CN Silane A 174
CN Silquest A 174
CN Silquest A 174NT
CN SS 1560
CN SZ 6030
CN TMSPM
CN Trimethoxy(3-methacryloxypropyl)silane
CN Trimethoxy(3-methacyloxypropyl)silane
CN TSL 8370
CN U 151
CN U 511

CN Unisilan 511
CN Z 6030
CN [γ-(Methacryloyloxy)propyl]trimethoxysilane
DR 834889-15-5, 96353-41-2, 66796-20-1, 114266-32-9, 65323-94-6, 65323-95-7, 65324-72-3, 79642-98-1, 85256-86-6, 82658-67-1, 100662-14-4, 201732-58-3
MF C10 H20 O5 Si
CI COM
LC STN Files: AGRICOLA, ANABSTR, BEILSTEIN*, BIOSIS, BIOTECHNO, CA, CAOLD, CAPLUS, CASREACT, CHEMCATS, CHEMINFORMRX, CHEMLIST, CSCHEM, EMBASE, HSDB*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MSDS-OHS, PIRA, PROMT, RTECS*, SPECINFO, TOXCENTER, USPAT2, USPATFULL
(*File contains numerically searchable property data)
Other Sources: DSL**, EINECS**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

6071 REFERENCES IN FILE CA (1907 TO DATE)
948 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
6090 REFERENCES IN FILE CAPLUS (1907 TO DATE)
22 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

REFERENCE 1: 146:219634

REFERENCE 2: 146:217325

REFERENCE 3: 146:212591

REFERENCE 4: 146:208955

REFERENCE 5: 146:208103

REFERENCE 6: 146:208084

REFERENCE 7: 146:207797

REFERENCE 8: 146:207523

REFERENCE 9: 146:207102

REFERENCE 10: 146:207036

L28 ANSWER 3 OF 3 REGISTRY COPYRIGHT 2007 ACS on STN
RN **999-97-3** REGISTRY
ED Entered STN: 16 Nov 1984
CN Silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)- (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN Disilazane, 1,1,1,3,3,3-hexamethyl- (6CI, 8CI)
OTHER NAMES:
CN 1,1,1,3,3,3-Hexamethyldisilazane
CN 1,1,1-Trimethyl-N-(trimethylsilyl)silanamine

CN A 166
CN A 166 (silazane)
CN Bis(trimethylsilyl)amine
CN Di(trimethylsilyl)amine
CN Hexamethyldisilazane
CN Hexamethyldisilylamine
CN HMD 3
CN HMDS
CN HMDS (silazane)
CN HMDS 3
CN LS 7150
CN NSC 93895
CN OAP
CN SE 31
CN SE 31 (silazane)
CN SZ 6079
CN TSL 8802
CN TSR 8802
DR 127290-38-4, 18186-75-9, 103737-28-6
MF C6 H19 N Si2
CI COM
LC STN Files: AGRICOLA, ANABSTR, BEILSTEIN*, BIOSIS, BIOTECHNO, CA, CAOLD, CAPLUS, CASREACT, CBNB, CHEMCATS, CHEMINFORMRX, CHEMLIST, CIN, CSCHEM, CSNB, DETHERM*, EMBASE, GMELIN*, HSDB*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK*, MSDS-OHS, PIRA, PROMT, PS, RTECS*, SPECINFO, SYNTHLINE, TOXCENTER, USPAT2, USPATFULL
(*File contains numerically searchable property data)
Other Sources: DSL**, EINECS**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)

$Me_3Si-NH-SiMe_3$

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

5812 REFERENCES IN FILE CA (1907 TO DATE)
411 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
5833 REFERENCES IN FILE CAPLUS (1907 TO DATE)
68 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

REFERENCE 1: 146:218631

REFERENCE 2: 146:218008

REFERENCE 3: 146:216483

REFERENCE 4: 146:216447

REFERENCE 5: 146:213039

REFERENCE 6: 146:212216

REFERENCE 7: 146:207588

REFERENCE 8: 146:207435

REFERENCE 9: 146:207237

REFERENCE 10: 146:196282

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http://www.stn-international.de/stndatabases/details/dwpi_r.html <<<
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L134 ANSWER 1 OF 11 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
AN **2004-460062** [43] WPIX
DNC **C2004-171568** [43]
DNN **N2004-364394** [43]
TI Electrode material useful for non-aqueous electrolyte secondary batteries comprises a negative electrode active material containing a lithium ion-**occluding** and **releasing** material treated with organosilicon base surface treating agent
DC A85; L03; P42; X16
IN ARAMATA M; FUKUOKA H; MIYAWAKI S; MOMII K; UENO S
PA (ARAM-I) ARAMATA M; (FUKU-I) FUKUOKA H; (MIYA-I) MIYAWAKI S; (MOMI-I) MOMII K; (SHIE-C) SHINETSU CHEM CO LTD; (SHIE-C) SHINETSU CHEM IND CO LTD; (UENO-I) UENO S
CYC 5
PIA US 20040106040 A1 20040603 (200443)* EN 7[0]
JP 2004178917 A 20040624 (200443) JA 12
CN 1505187 A 20040616 (200465) ZH
KR 2004047621 A 20040605 (200465) KO
TW 2004015815 A 20040816 (200578) ZH

ADT US 20040106040 A1 **US 2003-721280 20031126**; JP 2004178917 A **JP 2002-342624 20021126**; KR 2004047621 A **KR 2003-83847 20031125**; TW 2004015815 A **TW 2003-133223 20031126**; CN 1505187 A **CN 2003-10124624 20031126**

PRAI **JP 2002-342624 20021126**

AN **2004-460062** [43] WPIX

AB US 20040106040 A1 UPAB: 20060203

NOVELTY - A negative electrode material (M1) comprises a negative electrode active material (M2) containing a lithium ion-**occluding** and **releasing** material (M3) which has been treated with an organosilicon base surface treating agent (A1) is surface coated with a conductive coating.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is included for preparation of (M1) involving: heating (M2) containing (M3) which has been treated with (A1), in an atmosphere containing an organic material gas or vapor at 500 - 1400 degrees C.

USE - As a negative electrode active material in a lithium ion secondary battery (claimed).

ADVANTAGE - The battery, using the negative electrode material, has a high capacity and improved cycle performance. The electrode material exhibits high charge/discharge capacity and satisfactory cycle performance. The negative electrode material has strong binding force sufficient to prevent any loss of conductivity due to disruption of the electrode material. The method of preparation of negative electrode material is simple and applicable to industrial scale production.

TECH

INORGANIC CHEMISTRY - Preferred Components: (M3) Is silicon, a composite dispersion of silicon and silicon dioxide, and/or silicon oxide of formula SiOx. (A1) is a silane coupling agent of formula R(4-n)Si(Y)n (I) or its (partial) hydrolytic condensate, a silylating agent of formula (RmSi)l(Y)p (II) or a silicone resin of formula (R1)q(R2O)rSiO(4qr)/2 (III). The conductive coating is a carbon coating and the amount of carbon coated is 5 - 70 wt.% of (M2).

x = 1 - 1.6;
R = monovalent organic group;
Y = hydrolysable group or OH;
n = 1 - 4;
p = 1 - 3;
l = 2 - 4;
m = 1 - 3;
R1 = H or optionally substituted monovalent 1-10C hydrocarbon;
R2 = H, optionally substituted monovalent 1-6C hydrocarbon; and
q = 0 - 2.5;
r = 0.01 - 3;
q+r = 0.5 - 3.

Preferred Method: The organic material gas or vapor is thermally decomposed to form graphite in a non-oxidizing atmosphere at 500 - 1400 degrees C.

ABEX EXAMPLE - Vinyltrimethoxysilane (10 parts by weight (pbw)) as the silane coupling agent was dissolve in methanol (100 pbw) to form 50% methanol solution. 50% Methanol solution (200 pbw) was dissolved in deionized water (100 pbw) to from an aqueous solution. Then, this aqueous solution (1 pbw) was dissolved in methanol (100 pbw) to form a treating solution. To the treating solution (100 pbw) was added ceramics grade metallic silicon powder (100 pbw) having an average particle size of 3.5 mum and a BET specific surface area of 4 m2/g and stirred for 1 hour to get a slurry. The slurry was filtered and dried to obtain the metallic silicon powder treated with the silane coupling agent. The treated metallic silicon powder was placed in a rotary kiln where chemical vapor deposition was carried out in an Ar/CH4 gas atmosphere at 1200 degrees C, yielding a

non-aqueous electrolyte second aryl battery negative electrode material. The black powder thus obtained was a conductive powder having an average particle size of 4.2 micrometers, a BET specific surface area of 15.2 m2/g and a graphite coating weight of 22%. A lithium ion secondary battery showed excellent first cycle charge/discharge efficiency and excellent cycle performance.

L134 ANSWER 2 OF 11 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
AN 2004-014827 [02] WPIX
DNC **C2004-005039** [02]
DNN **N2004-011093** [02]
TI Lithium cell for electronic devices, has bilayered conductive resin layer and electroconductive material contained in inner and outer conductive resin layers consist of specific compounds
DC A13; A14; A28; A85; L03; X16
IN KAMIMURA T; MISHIMA H; OSAKI M
PA (KYOC-C) KYOCERA CORP
CYC 1
PIA JP 2003223883 A 20030808 (200402)* JA 10[1] <--
ADT JP 2003223883 A **JP 2002-22518 20020130**
PRAI **JP 2002-22518 20020130**
AN 2004-014827 [02] WPIX
AB JP 2003223883 A UPAB: 20050706
NOVELTY - The lithium cell has bilayered conductive resin layer. The conductive resin layer of inner side (14) containing electroconductive material is joined to electrodes of anode and cathode. The electroconductive material of layer (14) and consists of specific compounds. The electroconductive material of conductive resin layer of outer side (15) contains at least one type of silver, nickel and copper.

DETAILED DESCRIPTION - The base board (3) has an electrode extraction portion for anode (5) and an electrode extraction portion for cathode (6). The electricity generating element (1) consists of a laminate component which sequentially laminates the electrode for anode (7), electrolyte (12) and electrode for cathode (10). The electricity generating element electrically connects the electrode for anode of the laminate component and the electrode extraction portion of the anode of base board with the end-face electrode for anode (13). The electricity generating element electrically connects the electrode for cathode of the laminate component and the electrode extraction portion of the cathode of base board with the end-face electrode for cathode (16). The cover material (2) of the lithium cell is joined to the base board and holds the electricity generating element airtightly. The end-face electrode for cathode consists of bilayered conductive resin layer. The conductive resin layer of inner side containing electroconductive material is joined to the electrodes of anode and cathode. The electroconductive material consists of carbon, graphite, zinc oxide, tin oxide, tin oxide doped antimony, indium oxide, indium oxide doped tin oxide, titanium oxide which covers tin oxide doped antimony, potassium titanate which covers the tin oxide doped antimony, titanium carbide and polyacetylene. The electroconductive material comprised in conductive resin layer of outer side contains at least one type of silver, nickel and copper.

USE - For memory backup of portable electronic devices.

ADVANTAGE - The resistance of the battery is restrained and the deterioration accompanying the repeating of charging and discharging property is prevented. The long life lithium cell maintained the predetermined discharge capacitance over a long period of time is provided. The mounting area of the cell is reduced without using any special terminals. The electroconductive material of the conductive resin layer does not reacts with electrode. The heat produced at the time of soldering the lithium cell to a circuit board is endured, thermal stress

produced between electrodes is absorbed and the end-face detachment of electrode is prevented.

DESCRIPTION OF DRAWINGS - The figure shows the sectional drawing of the lithium cell.

electricity generating element (1)
cover material (2)
base board (3)
electrode extraction portion of anode (5)
electrode extraction portion of cathode (6)
electrode for anode (7)
electrode for cathode (10)
electrolyte (12)
end-face electrode for anode (13)
conductive resin layer of inner side (14)
conductive resin layer of outer side (15)
end-face electrode for cathode (16)

TECH

POLYMERS - Preferred Resin: The resin component of the conductive layer is chosen from polyamide type resin, polyester type resin, polyimide type resin, phenol resin, silicone type resin, epoxy resin and acrylic type resin. The resin component contains polymeric adhesive(s) belonging to synthetic rubber of styrene group.

L134 ANSWER 3 OF 11 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
AN **2003-807460** [76] WPIX
DNC **C2003-223617** [76]
DNN **N2003-647206** [76]
TI Electrolyte for battery used in mobile telephone and laptop computer, comprises siloxane derivative and electrolyte salt, and has excellent chemical stability and thermochemical stability
DC A26; A85; L03; T01; W01; W04; X12; X16
IN HORIE T
PA (SONY-C) SONY CORP
CYC 1
PIA JP 2003142157 A 20030516 (200376)* JA 11[3] <--
ADT JP 2003142157 A **JP 2001-334952 20011031**
PRAI **JP 2001-334952 20011031**
AN **2003-807460** [76] WPIX
AB JP 2003142157 A UPAB: 20050531

NOVELTY - An electrolyte comprises a siloxane derivative (1) and an electrolyte salt.

DETAILED DESCRIPTION - An electrolyte (16) comprises a siloxane derivative having formula (1), and an electrolyte salt.

R1, R2 = H or alkyl optionally substituted with halogen;
a = 1-50; and
m,n,q,r = 0-40.

An INDEPENDENT CLAIM is included for battery, which has electrolyte, positive electrode (14) and negative electrode (12).

USE - For secondary battery (claimed) used for camcorder, mobile telephone and laptop computer.

ADVANTAGE - The electrolyte has excellent chemical stability and thermochemical stability. The electrolytic vaporization and electrolytic degradation are suppressed even if heavy current flows rapidly during short circuit of electric current. Hence failure or ignition of battery due to generation of gas is prevented. The battery comprising the electrolyte has excellent battery properties.

DESCRIPTION OF DRAWINGS - The figure shows the sectional drawing of structure of secondary battery. (Drawing includes non-English language text).

negative electrode (12)

positive electrode (14)
electrolyte (16)

TECH
ORGANIC CHEMISTRY - Preferred Properties: The siloxane derivative has kinematic viscosity of 5000 mm2/second or less at 25 degreesC, and weight average molecular weight of 10000 or less. The electrolyte has an electric conductivity of 0.01 S/m or more at 25degreesC.
Preferred Composition: The electrolyte salt is lithium salt. The siloxane derivative has formula (2).
b = 0-3;
c = 1-4;
t,s = 0-40;
R3 = methyl; and
R4 = R1
b+c = 4. The negative electrode contains **occlusion** and detachable negative electrode material or lithium metal. The positive electrode contains **occlusion** and detachable oxides or sulfide.

ABEX EXAMPLE - A siloxane derivative (1 g) of formula (11) having a weight average molecular weight of 631 and kinematic viscosity of 16 mm2/second at 25degreesC, was added to lithium salt (1 mol) having a formula: (CF3SO2)2 NLi, to produce an electrolyte. The produced electrolyte had electric conductivity of 0.0383 S/m at 25degreesC. - a = 1; - m = 0; - n, q = 4; - r = 0; and - R1, R2 = CH3.

L134 ANSWER 4 OF 11 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
AN 2003-597589 [56] WPIX
DNC **C2003-161825** [56]
DNN **N2003-476293** [56]
TI Preparation of carbon/silicon/oxygen composite material useful as, e.g. heat resistant materials or structural materials, involves impregnating graphite with organosilicon compound from crosslinkable silanes or siloxanes
DC A26; E36; L03; P42
IN ARAMATA M; FUKUOKA H; KONNO H
PA (ARAM-I) ARAMATA M; (FUKU-I) FUKUOKA H; (KONN-I) KONNO H; (SHIE-C) SHINETSU CHEM CO LTD; (SHIE-C) SHINETSU CHEM IND CO LTD
CYC 2
PIA US 20030104131 A1 20030605 (200356)* EN 5[0] <--
JP 2003171180 A 20030617 (200356) JA 6 <--
US 6787189 B2 20040907 (200459) EN
ADT US 20030104131 A1 **US 2002-307924 20021203**; JP 2003171180 A **JP 2001-368167 20011203**
PRAI **JP 2001-368167 20011203**
AN 2003-597589 [56] WPIX
AB US 20030104131 A1 UPAB: 20050531
NOVELTY - A carbon/silicon/oxygen composite material is prepared by impregnating graphite with an organosilicon compound from crosslinkable silanes or siloxanes; causing the organosilicon compound to crosslink within the graphite; and heating the graphite at 300-1200 degreesC in a non-oxidizing gas for reaction to take place.
USE - For preparing a carbon/silicon/oxygen composite material useful as heat resistant materials, heating materials, structural materials, and lithium ion secondary cell negative electrode materials.
ADVANTAGE - The carbon/silicon/oxygen can be efficiently prepared through simple steps on an industrial scale and at low cost.

TECH
INORGANIC CHEMISTRY - Preferred Method: The carbon/silicon/oxygen composite material was heat treated at 800-1600 degreesC. Preferred Components: The graphite is expanded graphite.
POLYMERS - Preferred Component: The crosslinkable organosilicon compound

is selected from addition reaction curing organopolysiloxane compositions and curable silicone resins.

ABEX EXAMPLE - To expanded graphite (4.4 g) was added a solution in silicone oil (50 g) of an addition reaction during organopolysiloxane composition containing in admixture of methylvinylcyclosiloxane (43 g), 1,3,5,7-tetramethyl-1,3,5,7-tetravinylcyclotetrasiloxane) and methylhydrogensilicone oil (31 g) with 100 ppm platinum catalyst added. Thorough mixing caused the expanded graphite to adsorb the composition. The composition was then cured by heating in air at 300 degreesC for 1 hours. Subsequent heat treatment in an argon atmosphere at 1000 degreesC for 1 hour yielded 95% of carbon/silicon/oxygen composite material in powder form.

L134 ANSWER 5 OF 11 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
AN 2003-259099 [26] WPIX
DNC **C2003-067717** [26]
DNN **N2003-205389** [26]
TI Sealing material, for separator of solid polymer fuel cell, comprises organopolysiloxane, organohydrogenpolysiloxane, surface treated fumed silica and addition reaction catalyst
DC A26; A85; L03; X16
IN MEGURIYA N; TAIRA Y
PA (SHIE-C) SHINETSU CHEM CO LTD; (SHIE-C) SHINETSU CHEM IND CO LTD
CYC 29

PIA	EP 1251149	A1	20021023 (200326)*	EN	13[0]	<--
	JP 2002313373	A	20021025 (200326)	JA	7	<--
	KR 2002081085	A	20021026 (200326)	KO		<--
	US 20030032753	A1	20030213 (200326)	EN		<--
	US 6713205	B2	20040330 (200423)	EN		
	JP 3640301	B2	20050420 (200527)	JA	11	
	EP 1251149	B1	20061227 (200702)	EN		

ADT EP 1251149 A1 **EP 2002-8493 20020415**; JP 2002313373 A **JP 2001-118818 20010417**; JP 3640301 B2 **JP 2001-118818 20010417** ; KR 2002081085 A **KR 2002-20319 20020415**; US 20030032753 A1 **US 2002-122388 20020416**; US 6713205 B2 **US 2002-122388 20020416**
FDT JP 3640301 B2 Previous Publ JP 2002313373 A
PRAI **JP 2001-118818 20010417**
AN 2003-259099 [26] WPIX
AB EP 1251149 A1 UPAB: 20060119
NOVELTY - Sealing material for solid polymer fuel cell for sealing edges on side(s) of separator comprises (parts by weight):
(a) organopolysiloxane (100);
(b) organohydrogenpolysiloxane (0.1-30);
(c) fumed silica with specific surface area which has undergone surface treatment with at least two different surface treatment agents (10-50); and
(d) addition reaction catalyst.
DETAILED DESCRIPTION - A sealing material for a solid polymer fuel cell separator for sealing edges on at least one side of the separator comprises (parts by weight):
(a) organopolysiloxane with at least two alkenyl groups bonded to silicon atoms within each molecule (100);
(b) organohydrogenpolysiloxane with at least two hydrogen atoms bonded to silicon atoms within each molecule (0.1-30);
(c) fumed silica with a specific surface area of 50 to 250 m/g (as measured by a BET method) which has undergone surface treatment with at least two different surface treatment agents (10-50); and
(d) addition reaction catalyst.
USE - As a sealing material for separator of a solid polymer type

fuel cell (or a solid polymer electrolyte fuel cell) used as a small scale fuel cell. The fuel cells can be used in small power generation plants for building or factories.

ADVANTAGE - The present invention displays excellent moldability, heat resistance and elasticity. It has a compression set within air and within an acidic aqueous solution which can be suppressed to a low value, and produces an excellent seal, particularly in an acidic aqueous solution.

TECH

POLYMERS - Preferred Component: Organopolysiloxane (a) is represented by formula (1). The molar ratio of alkenyl groups bonded to silicon atoms relative to other non-alkenyl optionally substituted monovalent hydrocarbon groups bonded to silicon atoms, (alkenyl groups / non-alkenyl optionally substituted monovalent hydrocarbon groups) is a ratio from 0.0001 to 0.02. The organohydrogenpolysiloxane (b) is represented by formula (2). The organohydrogenpolysiloxane has at least three silicon atom bonded hydrogen atoms within each molecule. The molar ratio of Si-H groups within (b) relative to alkenyl groups bonded to silicon atoms within (a) (Si-H groups / alkenyl groups) is from 0.8 to 3.0, preferably 1.0-3.0. The surface treatment agents (c) are selected from siloxane oligomers; organochlorosilanes; organoalkoxysilanes; and organosilazanes and their partial hydrolysis condensates.

Preferred Composition: The sealing material further comprises a combination of two or more from filler, reinforcing agent, conductive agent, hydrosilylation reaction retarding agent, heat resistance imparting agent, internal mold **releasing** agent, adhesion imparting agent, and thixotropic agent.

R1 = optionally substituted 1-10C monovalent hydrocarbon, preferably alkyl, aryl, aralkyl, alkenyl, optionally substituted with halogen or cyano;

a = 1.5-2.8;

R2 = optionally substituted 1-10C monovalent hydrocarbon;

e = 0.7-2.1;

f = 0.001-1.0; and

e+f = 0.8-3.0.

L134 ANSWER 6 OF 11 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN

AN **2002-246965** [30] WPIX

DNC **C2002-074109** [30]

DNN **N2002-191679** [30]

TI Lithium secondary battery for personal computer, comprises binded polysilicate particles of active material of positive electrode and negative plate, and solid electrolyte between positive electrode and negative plate

DC A85; L03; T01; W01; X16

IN HARA T

PA (KYOC-C) KYOCERA CORP

CYC 1

PIA JP 2001297796 A 20011026 (200230)* JA 6[1] <--

ADT JP 2001297796 A **JP 2000-112107 20000413**

PRAI **JP 2000-112107 20000413**

AN **2002-246965** [30] WPIX

AB JP 2001297796 A UPAB: 20050525

NOVELTY - The lithium secondary battery comprises solid electrolyte (3) which has lithium ion conductivity between positive electrode (2) and negative plate (4) which consist of active material which can reversibly **occlude** and **release** lithium ion. Polysilicate particles (I) of the active material and solid electrolyte are binded by a binder.

DETAILED DESCRIPTION - The polysilicate particles is of formula (RxSiOy)n, where R is alkyl or allyl, x is 1-1.4, y is 1.3-1.5 and n is

5500-50000.

USE - For mobile apparatus, such as a personal computer and a mobile telephone.

ADVANTAGE - Lithium ion conduction between active material and solid electrolyte is increased, and thereby lithium secondary battery has favorable battery characteristics and is produced easily.

DESCRIPTION OF DRAWINGS - The figure shows the sectional drawing of the lithium secondary battery. (Drawing includes non-English language text).

Positive electrode (2)
Solid electrolyte (3)
Negative plate (4)

L134 ANSWER 7 OF 11 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
AN **2002-125660** [17] WPIX
DNC **C2002-038785** [17]
DNN **N2002-094283** [17]
TI Solid electrolyte cell for personal computer, comprises positive and negative electrodes active material and solid electrolyte binded by specific monoalkyl trialkoxysilane (co)polymeric binder
DC A26; A85; L03; X16
IN HARA T
PA (KYOC-C) KYOCERA CORP
CYC 1
PIA JP 2001243983 A 20010907 (200217)* JA 6[1] <--
ADT JP 2001243983 A **JP 2000-50980 20000228**
PRAI **JP 2000-50980 20000228**
AN **2002-125660** [17] WPIX
AB JP 2001243983 A UPAB: 20050902

NOVELTY - A solid electrolyte cell comprises solid electrolyte (3) with lithium ion conductivity, between positive (2) and/or negative electrodes (4) of active material which performs reversible **occlusion** and **release** of lithium ion. Active material particles and electrolyte (3) are binded by a polymeric binder of monoalkyl trialkoxysilane polymer (P), or copolymer of polymer (P) and tetraalkoxysilane monomer.

USE - Used for a mobile apparatus such as a personal computer, and a portable telephone.

ADVANTAGE - The solid electrolyte cell has high ionic conductivity and energy density, and favorable charging and discharging characteristics.

DESCRIPTION OF DRAWINGS - The figure shows the sectional drawing of the solid electrolyte cell.

Positive electrode (2)
Solid electrolyte (3)
Negative electrode (4)

L134 ANSWER 8 OF 11 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
AN **2002-099889** [14] WPIX
DNC **C2002-031336** [14]
DNN **N2002-073858** [14]
TI Lithium secondary battery for mobile apparatus, comprises electrode active material bound with solid electrolyte through a silane compound
DC A26; A85; L03; X12; X16
IN HARA T
PA (KYOC-C) KYOCERA CORP
CYC 1
PIA JP 2001243974 A 20010907 (200214)* JA 5[1] <--
ADT JP 2001243974 A **JP 2000-50983 20000228**
PRAI **JP 2000-50983 20000228**
AN **2002-099889** [14] WPIX

AB JP 2001243974 A UPAB: 20050524
NOVELTY - Lithium secondary battery comprises solid electrolyte (3) to enable lithium ion conductivity between positive electrode (2) and negative plate (4). Electrode active material performs reversible **occlusion release** of lithium ion. Active material particles and electrolyte are bound by copolymer of monoalkyl trialkoxy silane or monoallyl trialkoxy silane, polydialkyl siloxane and tetra alkoxy silane.
USE - For mobile apparatus like notebook personal computer and portable telephones.
ADVANTAGE - The battery is firmly bound and is highly flexible. Energy density of the active material is increased.
DESCRIPTION OF DRAWINGS - The figure shows the sectional view of a secondary battery.
Positive electrode (2)
Solid electrolyte (3)
Negative plate (4)

L134 ANSWER 9 OF 11 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
AN **2001-605536** [69] WPIX
DNC **C2001-179815** [69]
TI Solid electrolyte cell has positive electrode and negative plate having oxide active material which is coupled to solid electrolyte using copolymer of silica or tetra alkoxy silane and polydimethyl siloxane
DC A26; A85; L03
IN HARA T; HIGUCHI H; KAMIMURA T; KITAHARA N; MISHIMA H; OSAKI M; UMAGOME S
PA (KYOC-C) KYOCERA CORP
CYC 1
PIA JP 2001210375 A 20010803 (200169)* JA 6[1] <--
ADT JP 2001210375 A **JP 2000-21852 20000126**
PRAI **JP 2000-21852 20000126**
AN **2001-605536** [69] WPIX
AB JP 2001210375 A UPAB: 20050526
NOVELTY - The cell has solid electrolyte (5) containing crystalline oxide having lithium ionic conductivity, between positive electrodes (6) and negative plates (4) which have an oxide active material. The active material particle and solid electrolyte are coupled using a copolymer of silica synthesized by sol-gel method or tetra alkoxy silane and polydimethyl siloxane synthesized by sol-gel method.
DETAILED DESCRIPTION - The oxide active material in perform reversible **occlusion release** of lithium ion.
USE - As electric power unit for mobile apparatus, lithium secondary battery.
ADVANTAGE - The solid electrolyte cell has high density and its interfacial resistance is reduced by coupling active material and solid electrolyte using copolymer of tetra alkoxy silane and polydimethyl siloxane.
DESCRIPTION OF DRAWINGS - The figure shows sectional drawing of solid electrolyte cell. (Drawing includes non-English language text).
Negative plate (4)
Solid electrolyte (5)
Positive electrode (6)

L134 ANSWER 10 OF 11 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
AN 2000-505768 [45] WPIX
DNC **C2000-151766** [45]
DNN **N2000-374029** [45]
TI Lithium secondary cell comprises positive and negative electrodes and an electrolyte allowing migration of lithium ions
DC A85; L03; X16

IN HORIUCHI H; MIYASHITA T; TSUTSUMI M; YAMAMOTO T; YOSHIDA K
PA (FUIT-C) FUJITSU LTD
CYC 2
PIA WO 2000042669 A1 20000720 (200045)* JA 31[9] <--
JP 2000594167 X 20020514 (200247) JA <--
JP 3696790 B2 20050921 (200562) JA 14
ADT WO 2000042669 A1 **WO 1999-JP125 19990114**; JP 2000594167 X **WO 1999-JP125 19990114**; JP 3696790 B2 **WO 1999-JP125 19990114**; JP 2000594167 X **JP 2000-594167 19990114**; JP 3696790 B2 **JP 2000-594167 19990114**
FDT JP 2000594167 X Based on WO 2000042669 A; JP 3696790 B2 Based on WO 2000042669 A
PRAI **WO 1999-JP125 19990114**
AN 2000-505768 [45] WPIX
AB WO 2000042669 A1 UPAB: 20060116
NOVELTY - A lithium secondary cell comprises a positive electrode (10') capable of **releasing** and capturing lithium ions, a negative electrode (20') made of a material capable of being doped with lithium ions and being dedoped of lithium ions, metallic lithium, or a lithium alloy, and an electrolyte allowing migration of lithium ions.
DETAILED DESCRIPTION - A lithium secondary cell where at least either the positive electrode (10') or the negative electrode (20') is formed on a current collector (11') having an insulating resin layer (12') and a metal conductive layer (13') formed on the resin layer (12').
Preferred Features: The thickness of the metal conductive layer (13') is 2.5-5 micro m, and through holes (14') are preferably made through at least the metal conductive layer (13') in the direction of the thickness.
USE - None given.
DESCRIPTION OF DRAWINGS - Diagram represents the lithium secondary cell.
Positive electrode (10')
Current collector (11')
Insulating resin layer (12')
Metal conductive layer (13')
Holes (14')
Negative electrode (20')

L134 ANSWER 11 OF 11 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
AN **2000-262729** [23] WPIX
DNC **C2000-080420** [23]
DNN **N2000-196227** [23]
TI Electrolyte injection structure for non-aqueous electrolyte battery, has nozzle that injects non-aqueous electrolyte, is partially **occluded** by resin
DC A14; A17; A23; A26; A85; L03; X16
IN NISHIO K; YONEZU I; YOSHIMURA S
PA (SAOL-C) SANYO ELECTRIC CO LTD
CYC 1
PIA JP 2000067923 A 20000303 (200023)* JA 7[1] <--
ADT JP 2000067923 A **JP 1998-238051 19980825**
PRAI **JP 1998-238051 19980825**
AN **2000-262729** [23] WPIX
AB JP 2000067923 A UPAB: 20050410
NOVELTY - The non-aqueous electrolyte is injected into a container (3) by a nozzle (6). The nozzle is partially **occluded** by resin selected from polyethylene, polypropylene, polyimide, polyamide, fluoro resin and silicone resin.
USE - For injecting non-aqueous electrolyte to battery.
ADVANTAGE - Prevents degradation of electrolyte during heating, by

occluding nozzle partially by resin. Prevents water invasion into battery by **occluding** nozzle reliably. Stabilizes preservation of non-aqueous electrolyte for long time period. - DESCRIPTION OF DRAWING - The figure shows the sectional drawing of secondary battery. (3) Container; (6) Nozzle.

=> d his

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     (FILE 'HOME' ENTERED AT 10:17:13 ON 07 MAR 2007)
                SET COST OFF

     FILE 'HCAPLUS' ENTERED AT 10:17:38 ON 07 MAR 2007
L1             1 S US20040106040/PN OR (US2003-721280# OR JP2002-342624)/AP,PRN
                 E FUKUOKA/AU
                 E FUKUOKA H/AU
L2           103 S E3,E23,E25,E27
                 E FUKUOKA NAME/AU
L3             4 S E4
                 E HIROFUMI/AU
                 E ARAMATA/AU
                 E ARAMATA M/AU
L4           100 S E3,E5
                 E MIKIO/AU
                 E MIYAWAKI/AU
                 E MIYAWAKINAME/AU
                 E MIYAWAKI NAME/AU
L5            12 S E4
                 E MIYAWAKI S/AU
L6            53 S E3,E4
                 E SATORU/AU
L7             3 S E3
                 E UENO/AU
                 E UENO NAME/AU
L8            23 S E4
                 E UENO S/AU
L9           262 S E3,E4
                 E UENO SU/AU
L10          293 S E11-E13
                 E SUSUMU/AU
L11            4 S E46
L12            1 S E73
                 E MOMII/AU
L13           39 S E10,E12
                 E KAZUMA/AU
                 SEL RN L1

     FILE 'REGISTRY' ENTERED AT 10:22:37 ON 07 MAR 2007
L14            7 S E1-E7
L15            5 S L14 AND SI/ELS
L16            2 S L14 NOT L15

     FILE 'HCAPLUS' ENTERED AT 10:23:46 ON 07 MAR 2007
L17         2976 S VINYLTRIMETHOXYSILANE
L18          183 S VINYL TRIMETHOXYSILANE
L19           64 S VINYL TRIMETHOXY SILANE
L20           34 S VINYLTRIMETHOXY SILANE
L21          623 S METHACRYLOXYPROPYL TRIMETHOXYSILANE
L22         3312 S METHACRYLOXYPROPYLTRIMETHOXYSILANE
L23           82 S METHACRYLOXY PROPYL TRIMETHOXYSILANE
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L24          26 S METHACRYLOXY PROPYL TRIMETHOXY SILANE
L25          45 S METHACRYLOXYPROPYL TRIMETHOXY SILANE
L26        5852 S HEXAMETHYLDISILAZANE
L27         261 S HEXAMETHYL DISILAZANE

     FILE 'REGISTRY' ENTERED AT 10:26:45 ON 07 MAR 2007
L28           3 S 999-97-3 OR 2768-02-7 OR 2530-85-0

     FILE 'HCAPLUS' ENTERED AT 10:27:05 ON 07 MAR 2007
L29      117329 S H01M/IPC,IC,ICM,ICS
                E BATTERY/CT
L30       58717 S E4+OLD,NT OR E5+OLD,NT OR E6+OLD,NT OR E7 OR E8+OLD,NT
                E E9+ALL
L31        8905 S E2+OLD,NT OR E3+OLD,NT OR E4+OLD,NT
                E BATTERIES/CT
L32       28202 S E3-E23
                E E3+ALL
L33      121672 S E1 OR E2+OLD,NT OR E3+OLD,NT OR E4+OLD,NT OR E5+OLD,NT
L34     1090681 S CATHOD? OR ANOD? OR ELECTROD? OR BATTERY
L35     1129250 S L29-L34
                E POLYSILOXANE/CT
L36           1 S E3
L37       65107 S E81
                E E37+OLD
                E POLYSILOXANES/CT
                E E3+OLD
L38      131066 S E1+OLD
                E SILANE/CT
L39       22621 S E3
L40       16621 S E92-E112
                E E92+ALL
L41       16643 S E3,E4
L42      152341 S E3+NT
                E CYCLOSILOXANE/CT
L43        3927 S E29-E74
                E E29+ALL
L44        8616 S E9+NT
                E E8+ALL
L45       15286 S E5+NT
L46       10150 S L35 AND L36-L45
L47         444 S L35 AND L17-L27
L48         451 S L35 AND L28
L49          62 S L1-L13 AND L35
                E SHINETSU/PA,CS
L50         146 S E3,E4 AND L35
                E SHIN ETSU/PA,CS
L51          93 S E5-E84 AND L35
L52         347 S E85-E132 AND L35
L53         107 S E133-E204 AND L35
L54           0 S E205-E221 AND L35
L55           0 S E1,E2 AND L35
                E BACK E1
L56           0 S E5-E13 AND L35
L57       10964 S L46-L56
L58      117800 S L35 AND (?SILOX? OR ?SILAN? OR ?SILIC? OR ?SILYL?)
L59      118554 S L57,L58
L60        7984 S L59 AND L16
L61        2099 S L60 AND PY<=2003 NOT P/DT
L62        1888 S L60 AND PY<=2002 NOT P/DT
L63        4031 S L60 AND (PD<=20031126 OR PRD<=20031126 OR AD<=20031126) AND P
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L64        3574 S L60 AND (PD<=20021126 OR PRD<=20021126 OR AD<=20021126) AND P
L65        6130 S L61-L64
L66         197 S L65 AND NEGATIVE(L) ?ELECTROD?
L67          32 S L66 AND (NONAQUEOUS? OR NON AQUEOUS?)
L68          90 S L66 AND (LI OR ?LITHIUM?)
L69           3 S L66 AND (LI OR ?LITHIUM?)(L)OCCLU?
L70          27 S L68 AND L67
L71          26 S L70 AND SECONDARY
L72          27 S L69,L71
L73           6 S L70,L67 NOT L72
                SEL DN AN 3 5
L74           4 S L73 NOT E1-E6
L75          31 S L72,L74
L76          14 S L49 AND L65
L77          11 S L76 NOT L75
L78          42 S L75-L77
L79          42 S L78 AND L1-L13,L17-L27,L28,L29-L78

     FILE 'REGISTRY' ENTERED AT 10:48:46 ON 07 MAR 2007

     FILE 'HCAPLUS' ENTERED AT 10:48:46 ON 07 MAR 2007
L80             TRA L79 1- RN :      378 TERMS

     FILE 'REGISTRY' ENTERED AT 10:48:48 ON 07 MAR 2007
L81          378 SEA L80
L82          378 S L80
L83           95 S L82 AND SI/ELS
L84           28 S L83 AND (SI AND O)/ELS
L85            1 S L83 AND PMS/CI
L86           18 S L84 AND 2/ELC.SUB
L87            4 S L84 AND C/ELS
L88            6 S L84 NOT L85-L87,L28
L89           67 S L83 NOT L84-L88
L90            1 S L89 AND SI/MF

     FILE 'HCAPLUS' ENTERED AT 10:53:03 ON 07 MAR 2007
L91           32 S L79 AND L90,L85-L87
L92            4 S L79 AND L88
L93            2 S L79 AND L17-L27,L38
L94           32 S L91-L93
L95           10 S L79 NOT L94
L96            1 S L95 AND L1-L13,L50-L53
L97           33 S L94,L96
L98            9 S L79 NOT L97
                SEL DN 8 9
L99            2 S L98 AND E7-E8
L100          35 S L97,L99
L101          36 S L69,L100
L102           8 S L101 AND (OCCLU? OR RELEAS?)
L103          36 S L101,L102

     FILE 'HCAPLUS' ENTERED AT 10:57:37 ON 07 MAR 2007

     FILE 'REGISTRY' ENTERED AT 10:58:06 ON 07 MAR 2007

     FILE 'WPIX' ENTERED AT 10:58:33 ON 07 MAR 2007
                E VINYLTRIMETHOXYSILANE/CN
L104            1 S E3
                E METHACRYLOXYPROPYLTRIMETHOXYSILANE/CN
L105            1 S E3
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                E HEXAMETHYLDISILAZANE/CN
L106          1 S E3
L107          3 S L104-L106
L108       3708 S (R05257 OR R05402 OR R04617 OR R16515)/DCN OR L107/DCR
L109       3027 S (R05257 OR R05402 OR R04617 OR R16515)/PLE
L110       5193 S L17 OR L18 OR L19 OR L20 OR L21 OR L22 OR L23 OR L24 OR L25 O
L111      79528 S P1445/PLE
L112     100561 S (F81 OR F83 OR F84 OR F85 OR F86 OR F87)/PLE
L113     103392 S L108-L112
L114        612 S L111 AND Q7341/PLE
L115        907 S L111 AND H01M/IPC,IC,ICM,ICS
L116        237 S L111 AND (X16-B OR X16-B01 OR X16-B01F OR X16-B01F1)/MC
L117        533 S L111 AND (A12-E06 OR A12-E06A OR L03-E OR L03-E01B OR L03-E01
L118        107 S L111 AND (X16-E OR X16-E01C OR X16-E01E OR X16-E01G OR X16-E0
L119       1120 S L114-L118
L120        889 S L119 AND (PD<=20031126 OR PRD<=20031126 OR AD<=20031126)
L121        737 S L119 AND (PD<=20021126 OR PRD<=20021126 OR AD<=20021126)
L122        889 S L120,L121
                E CARBON/CN
L123          4 S E3
L124      83184 S (R05086 OR R01778 OR R01776 OR R01669 OR R05085)/DCN OR L123/
L125         78 S L122 AND L124
L126         13 S L122 AND OCCLU?
L127         60 S L122 AND RELEAS?
L128          6 S L126 AND L127
L129          9 S L125 AND L126-L128
L130         22 S L126,L128,L129
                SEL DN AN 4 6 11-13 15 17
L131          7 S L130 AND E1-E20
L132        114 S L125-L129 NOT L130
                SEL DN 37 44 48 70
L133          4 S L132 AND E21-E28
L134         11 S L131,L133

     FILE 'WPIX' ENTERED AT 11:21:32 ON 07 MAR 2007

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